BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 21 1937

MODERN TREATMENT AND RESULTS OF TREATMENT OF FRACTURES OF THE NECK OF THE FEMUR*

BY

ERNEST W. HEY GROVES, M.S., F.R.C.S.

Emeritus Professor of Surgery, Bristol University

As it is only two years since I opened a discussion on this subject at the Melbourne meeting of the Association I propose to make this paper a very short one, setting out what seem to me to be the chief advances that have been made and formulating the questions which we ought to-day to be able to answer about methods and results.

The Smith-Petersen Nail

This device has been a wonderful example of the triumph of practice over theory. It was introduced at a time when the whole trend of surgical opinion was set strongly against "plating" of any kind which involves burying large foreign bodies in the tissues. I well remember when Smith-Petersen introduced his device before a joint meeting of the British and American Orthopaedic Associations in 1929, and how shocked many of us felt at the deliberate reversion to the steel-plate method of fixing fractures. And yet now, less than ten years after, it may be fairly said that the Smith-Petersen nail has completely dominated the situation, not only in America and England but also in Germany, France, Belgium, Austria, and Italy. The rapid adoption of this method has been due to the very quick immediate restoration of function which it affords. The patient who we were accustomed to think of as languishing in bed for months is now able to get up within a week. It is no longer necessary to keep him in a large plaster case for weeks or months, and the whole prospect is changed from one of rather gloomy resignation to one of confident optimism. As in the case of all other surgical advances, zeal has outrun discretion, and extravagant claims are made which may lead to disillusionment later.

The great merit of Smith-Petersen's nail is that it affords the maximum of mechanical fixation with the minimum of trauma or destruction of tissue. The three flanges control rotation of the bone fragments, whilst the thinness of the metal blades does little damage to the cancellous tissue of the femoral neck. But it is well to remember that, however perfect in these respects the nail is, it has all the drawbacks of a metal foreign body. Apart from its undoubted virtue in fixing the fragments so that growth, union, and function can occur, it is essentially a check to tissue formation. When the pin is removed after weeks or months it is often found that the site in which it has lain is filled with loose bone debris or mere granulation tissue. In actual practice, even in cases which do well, the nail will have to be removed sooner or later, though this is a very trivial drawback when compared with the rapid immediate recovery which it usually brings about.

The Results

At present I do not think we have enough accurate information as to the ultimate results of the Smith-Petersen nail treatment. So far lists which have been published represent almost entirely only recent results, and I hope very much that subsequent speakers will be able to give us figures about cases at a year or more after the operation. I have seen cases in which the nail has been perfectly applied and the patients have been able to walk out of hospital, and yet in less than twelve months they have extruded the nail and suffered disunion, being left with an ununited fracture. I should very much like to know in what percentage of cases this disappointing result occurs. That it must occur in a certain proportion is obvious. Nailing the fracture will sometimes imprison a fold of capsule between the fragments, and no bony union can cross this fascial barrier. In other cases, even without interposition of capsule, new bone will be very slow in growing from the neck into the head and will be so feeble that it is quite unequal to bearing any strain. For both these reasons it is certain that failure must sometimes occur, and before long we ought to be able to state the probability of this mischance with some accuracy.

In the days when Whitman's method held the field the optimism of its originator at one time led us to think that it was well-nigh infallible. But when the pitiless light of experience was shed upon the facts it became obvious that only 50 or 60 per cent. of the cases gave bony union. Smith-Petersen's nail will probably give a better figure than this, but, for the reasons I have stated above, the percentage of successes must fall considerably short of 100. Probably 75 per cent. will represent the maximum number of ultimate successes. But even if this is the best that the method can achieve we have to remember that it will also have saved a great amount of suffering and invalidism in the rapid immediate recovery of function it has afforded to all of the patients.

Methods of Application

So far I have merely referred to the insertion of the Smith-Petersen nail without distinguishing between the different methods of its application. These may be grouped under three headings—namely,

1. The open operation.
2. Blind insertion over wire guides.
3. Blind insertion with the help of a mechanical director.

* Read in opening a discussion in the Section of Orthopaedics, including Treatment of Fractures, at the Annual Meeting of the British Medical Association, Belfast, 1937.

The Open Operation.—Smith-Petersen's original operation in this country has been modified by Watson Jones. The method was well described and illustrated in the July number of the *British Journal of Surgery* last year. In the case of comparatively young and robust patients this is the method of choice. It gives a good view of the fracture and enables the operator to draw aside the flap of capsule which so often is folded over the fractured neck of the femur. And, further, it allows an accuracy of reduction under the guidance of direct vision which is denied to any method guided only by the *x* rays. The insertion of a stout drill right through the neck and head and on into the acetabulum will hold the fragments in position whilst the nail is being driven into place. But, on the other hand, it is foolish to pretend that the open operation is either easy or free from danger. It must take nearly an hour in performance; there must be some loss of blood, and there must be a wide exposure of the soft parts and a free opening of the cavity of the hip-joint. For all these reasons I hold that it is unjustifiable in old and feeble patients. And it is just these feeble old patients who constitute the real problem in the wards of many hospitals, and particularly in the municipal institutions.

Blind Insertion over Wire Guides.—This method, which is associated with the names of Sven Johansson, Jerusalem, and King, has had a great vogue. We are honoured to-day by the presence of Professor Sven Johansson, and no doubt he will give us a convincing demonstration of its merits. I have watched it being done by various distinguished surgeons, including King, at Melbourne, who two years ago was an enthusiastic advocate of the method. We greatly regret that he is unable to come here to-day to introduce this discussion as he had hoped. Frankly I feel quite unable to do justice to the method, of which I have had so little personal experience. It involves two great drawbacks. First, it is long and tedious and involves keeping the patient for one or two hours under an anaesthetic. Secondly, it is dependent on taking and interpreting many *x*-ray pictures, on which reliance must be placed for guiding the nail into position. These drawbacks, to my mind, make it unsuitable for the feeble old patient whom I have already said is the real problem we have to treat.

Blind Insertion with Mechanical Director.—Instead of being solely dependent on the *x* rays to guide the Smith-Petersen nail into position various mechanical devices have been invented to secure accuracy of insertion. There are a host of these, and I will only speak of one which I have designed, and which has the great advantage of simplicity. It has been used many times by my friends Mr. Kenneth Pridie of Bristol and Mr. William Gissane of St. James Hospital, London, and I hope that they will be able to demonstrate to you its method and results. The fracture having been reduced, a two-pronged guide is placed over the line of the bones so that one prong touches the middle of the head of the femur and the other the base of the femoral neck. This enables a drill to be passed accurately into the bone in the true axis of the neck of the femur. Only a short incision is required; the operation is bloodless; it can be done under gas-oxygen anaesthesia; and it occupies only about ten to fifteen minutes. It is therefore suitable for the feeble old patient, who will suffer neither loss of blood nor shock.

After-treatment

The tendency nowadays is to give very little after-treatment, but to consider that the properly placed nail has cured the patient. Eversion of the leg is prevented by a bar fixed to the sole of the shoe, or by slinging the flexed knee to an overhead cradle. The patient is usually allowed up within one week, and walks with sticks or crutches, bearing no weight on the injured leg for about six weeks. I do not know why the tried and trusty walking calliper has been abandoned, but unfortunately it has. It seems to me that it would be much wiser to adhere to the use of this appliance as being a safeguard against weight-bearing until bony union is assured. The nail should be removed about three months after its insertion. It can do no further good, and its continued presence tends to produce bone atrophy.

Late Cases

Probably the number of cases of definite non-union will become much smaller as the practice of early and accurate nailing is more followed. But unfortunately there will always remain a certain number of these, and their condition, except in those who are bed-ridden, is so deplorable that it certainly requires attention. There are three possible operations by which pain and lameness may be diminished.

Bifurcation Osteotomy.—This is usually the method of choice. It is very simple and easy, involving no shock or haemorrhage. The femur is divided at the level of the small trochanter, and the shaft is pushed inwards so that its upper end shall impinge against the lower margin of the acetabulum. The leg is put up in moderate abduction and fixed in a plaster case. The objects achieved by the operation are two: first and foremost, the Y-shaped upper end of the femur will serve to support the weight of the body from the lower margin of the acetabulum, whilst the leg is brought more directly under the centre of gravity of the body; secondly, abduction of the leg is substituted for adduction, and therefore the shortening of the leg will be reduced.

Schanz's Cuneiform Osteotomy.—This is a more accurate method of reconstructing the line of the upper end of the femur. Two long stout pins are driven into the femur through a lateral incision. The upper pin goes through the great trochanter into the neck. The lower pin goes through the shaft of the femur several inches lower down. The two pins are inserted at a divergent angle, which represents the angle of reduction. A wedge with its base lateral is then cut out from the femur between the two pins. The femur is abducted until the wedge-shaped gap is closed. The projecting ends of the pins are incorporated in the plaster cast. The merit of this operation is that the upper trochanteric part of the femur is adducted by its transfixing pin. The reconstructed upper end of the femur is ⌐-shaped (like an inverted L) and will actually support the separated head of the bone so that the weight of the body will force the two original fractured surfaces together. Böhler has recorded cases in which this has eventually led to bony union. The method is more difficult than the simple bifurcation osteotomy.

Whitman's Reconstruction Operation.—In this procedure the head of the femur is removed from the acetabulum. The neck is thrust into the hip-socket and the great trochanter is transplanted lower down on to the femoral shaft. The success of this operation will depend largely on the solidity of the damaged neck of the femur. If this is fairly sound it may be relied on to form a good substitute for the lost head. But this operation is not to be done in the case of feeble old patients, for whom the simple bifurcation osteotomy is the method of choice.

Conclusions

1. The proper use of a Smith-Petersen nail is the best method of treating intracapsular fractures of the neck of the femur. Its simplicity and accuracy represent a great advance over older methods.

2. The Smith-Petersen nail is only the provision of an efficient internal splint. Its great merit is that it allows the patient to get up within a few days.

3. The Smith-Petersen nail will neither ensure nor encourage new bone formation, and therefore there must always be failures after its use.

4. The nail can only succeed if it is accurately inserted after the fracture has been perfectly reduced.

5. The open operation is the method of choice in young and vigorous patients.

6. For feeble old patients the blind method, using a mechanical guide for inserting the nail, should be used. This is easy and is free from danger.

7. In ununited cases a bifurcation osteotomy is usually the method of choice.

OPERATIVE TREATMENT AND RESULTS IN FRACTURE OF NECK OF FEMUR*

BY

PROFESSOR SVEN JOHANSSON

Gothenburg

Hardly any form of fracture has attracted such interest and been the subject of so much discussion as fracture of the femoral neck, especially during the last few decades. The pessimistic feeling regarding its treatment has now given way to a more hopeful attitude. Authors differ, however, on this subject. As late as 1935 the well-known American surgeon, Kellog Speed, called this fracture "the unsolved fracture." With the greatest surprise, then, we hear that one of the leading surgeons of Germany, Professor Sauerbruch of Berlin, last year proposed removal of the head of the femur as a standard method in patients over 35 years, a method which I thought had been abandoned all over the world a long time ago.

The bad results have been thought to be due to the peculiar anatomical conditions in this form of fracture and to the high average age of the patients. The experience of the last few years, however, seems to me to have produced abundant evidence that this view must be abandoned. With the proper technique, consisting in exact reposition and good fixation, not too quickly removed, fractures of the femoral neck can be healed as easily as others. Everything, or nearly everything, depends on the technique. That the demands can be met and good results be attained with conservative treatment has been shown by Whitman, Lorenz, and Löfberg among others.

The Conservative Method

It is, however, not so easy to get a clear idea of the results to be attained by conservative treatment. The different statistics are scarcely comparable, for the reason, among others, that the cases have been selected for treatment particularly with regard to age. Concerning the end-results most of the statistics leave much to be desired. I think, however, that the American surgeon Gill comes very close to the truth when he says:

"Making due allowance for the faults of statistical tables, and granting that some surgeons, because of their greater expertness in manipulation and putting on plaster, may get better results than others, it is still evident that the use of the Whitman method has given vastly better results than the older methods of treatment, and that good end-results may be expected on a general average in 50 to 65 per cent. of cases."

In a critical review of various statistics of conservative treatment Gill estimates the primary mortality at not less than 20 to 25 per cent. In my own ward all cases were treated conservatively up to the year 1932. During the ten-year period 1922–31 the number of cases amounted to 390 and the mortality was 19 per cent. Concerning the end-results I can only say that they were worse rather than better than the average.

I have no experience of my own regarding the operative treatment entailing exposure of the fracture site, and for this reason will not discuss that method.

Extra-articular Osteosynthesis

In the method of treatment evolved by myself—extra-articular osteosynthesis, first published in the *Zentralblatt für Chirurgie* in 1932—three fundamental points demand attention: first, non-operative reposition by extension in the position of abduction with inward rotation following; secondly, fixation—without exposure of the fracture site—by the use of Smith-Petersen's rustless nail; thirdly, artificial impaction according to the method of Cotton. The following are the details of the treatment.

The reposition is done in bed with wire traction through the tibial tuberosity. In general, one week is enough to reduce the dislocation in the frontal plane. It is important that this primary wire traction take place with retention of the outward rotation, otherwise there is always the risk that the head will rotate. At the start I performed the reposition on an extension table as soon as possible after the accident; in most cases a satisfactory reposition was attained in this way, but not in all. Of my first 100 cases, in which as a rule the reposition was made on the extension table—redislocation took place in 16 per cent., necessitating a second operation; in the later seventy-nine cases, in which previous extension in bed was the rule, the corresponding figure was only 4 per cent. The advantage derived from the period of waiting is that the patient can be specially observed in regard to heart and lungs. Cases which are bad risks can be improved or eventually excluded. The only manœuvre of reposition which is needed on the extension table is inward rotation (about 25 degrees), of course with maintained extension. An abduction of about 45 degrees is enough.

Experience has shown that the reposition made in bed is not endangered by the removal of the patient to the extension table. Local anaesthesia and a few drops of ether while inserting the nail are enough if the patient has been given morphine beforehand. If spinal anaesthesia is used there is always the risk of an undesired over-extension. The reposition is controlled with *x*-ray pictures taken in two positions at right-angled planes; the position of the guiding wire and the nail is controlled in the same way. To simplify the insertion of the nail a thin stiff wire is first drilled into the centre of the femoral neck. After radiographs in two planes have shown the position of the wire to be satisfactory, the nail, which is bored through, is threaded on the wire. The wire is then withdrawn, and with a few blows on the femur shaft below the trochanter the desired artificial impaction is effected. The most important point is to judge the direction accurately when introducing the wire. This is done in the following simple way.

* Read in opening a discussion in the Section of Orthopaedics, including Treatment of Fractures, at the Annual Meeting of the British Medical Association, Belfast, 1937.

About two centimetres below and parallel to Poupart's ligament are placed two rows of lead shot, each row consisting of three pieces. In this way the determination of the central point of the head in the frontal plane is greatly facilitated, it being possible to fix it within a millimetre or so. The point, when ascertained, is marked with a short hypodermic needle. In order accurately to locate the actual point of entrance for the guiding wire a sharp-pointed steel pin is inserted percutaneously just below the greater trochanter and radiographs are taken. The optimum point of entrance for the guiding wire, in both the frontal and the sagittal plane, is now easily calculable.

The required length of nail is ascertained in the following manner. The guide-wire is inserted for a distance of 9 cm., or, if the femoral neck is very short, 8 cm., and a skiagram readily shows whether the nail should be longer or shorter than the wire. Allowance must be made for the slight enlargement of the picture produced by the distance between the *x*-ray tube and the film. I once had the unfortunate experience of seeing a nail broken: the patient in question was unusually heavy. This kind of accident can be avoided, however, by using a nail with wings one millimetre broader than usual.

The position of the nail in the femoral neck is not a matter of indifference, since the forces of displacement that are compensated for by means of the nail are in a large degree dependent upon the situation of the fracture line. This fact was convincingly demonstrated as a mechanical problem by Pauwels in his work on fractures of the neck of the femur, published last year.

Owing to individual variability the axis of the femoral neck does not always assume a horizontal position upon 25 degrees inward rotation of the knee-joint, but by my method this does not much matter as the alignment apparatus I use permits a very satisfactory adjustment of the angle to the horizontal plane.

In the majority of cases I consider the axial location of the nail to be the best, for the simple reason that there is less risk of getting outside the femoral neck and head. Only in the cases in which the fracture line is almost vertical—uncommon cases in my experience—should one try to put the nail in the uppermost part of the neck.

After the operation the patient is placed in bed in a position of slight flexion at hip- and knee-joints, and remains there as a rule for at least one month. During this time treatment consists of mobilization of the limb, muscle massage, and stimulation by faradic currents. In order to avoid pulmonary congestion very old patients are allowed to *sit* out of bed at an earlier date, but any weight-bearing is absolutely prohibited. Thereafter one proceeds to walking exercises in a walking-chair. This continues for about a month, after which time the walking-chair is replaced by crutches—two at first and one later on. In uncomplicated cases, after about three months the ability to walk is usually quite good, and even full weight-bearing is painless. Observation by repeated radiographs is to be recommended as a safeguard against unpleasant surprises.

Should the position of the nail immediately after the operation or later prove unsatisfactory and redislocation occur one should not hesitate to reoperate. I have done so in nineteen of my 179 cases—that is, in about 10 per cent. In ten of these nineteen cases bony union took place. Redislocation has as a rule resulted from the use of the wrong technique; in some cases the nail had slipped on account of too early weight-bearing, in others the cause is not known. In twenty-six cases out of 179 the nail was extracted after it was certain that bony union had ensued (generally not before six months). The reason was in most instances that the nail had been displaced outwards and caused pain and aching.

A very important point is secondary necrosis of the femoral head. Here one has to differentiate between the healed cases and those not healed (pseudarthrosis). That the head in the latter cases should necrose is not surprising; in the former—that is, the healed cases—necrosis is, according to my experience, not very frequent. I have only seen it happen three times; in one case with very slight alteration and no clinical symptoms. On one occasion I performed arthrotomy and removed the necrotic part, which resembled typical osteochondritis dissecans. Even in cases treated conservatively one now and then observes necrosis. This is probably due to primary lesions of the vessels and not to the operation as such.

Partial necrosis of the head is more frequent in young than in elderly patients. In one of my cases, that of a boy 13 years old with a medial fracture, it occurred after the fracture had healed—a spontaneous epiphyseolysis.

Results

My own statistics now comprise 179 cases, most of them medial fractures. The classification has been according to Anschütz's scheme. The results are shown in the following table:

Medial Fractures

Age	Total Cases	Deaths	Cases Operated on	Complications				
				Non-union	Osteo-Arthritis of Hip	Aseptic Necrosis of the Femoral Head	Separation of Upper Femoral Epiphysis	Cases the Fate of which is Uncertain
Under 60	53	1	52	0	1	1	1	1
Over 60 ..	112 (66)	18 (15)	94 (51)	8 (5)	1 (1)	1		6 (6)
Totals ..	165 (66)	19 (15)	146 (51)	8 (5)	2 (1)	2	1	7 (6)

Intertrochanteric (Basal) Fractures

Age	Total Cases	Deaths	Non-union
Under 60	3	0	0
Over 60	11 (7)	0	0
Totals	14 (7)	0	0

The mortality was 10.6 per cent. Bony union followed in 95 per cent. of all cases alive, and in 94 per cent. of all medial fractures alive.
The figures in parentheses represent the number of patients in that group over the age of 70.

In one case only can the cause of death be attributed to the operation. This was a case of fat embolism. In nine cases the cause of death was found after full investigation not to be due to either the fracture or the operation. Fifteen patients out of the nineteen who died were more than 70 years old.

Time does not allow of an account of other statistics and comments on them. In passing I will only mention that, among others, Böhler and Felsenreich in Vienna, who used the method I have described, a short time ago published relatively large statistics showing the same favourable results.

Conclusions

My conclusions are as follows: By proper reposition and fixation bony union and fully satisfactory functional

results may be obtained in the majority of cases, even in medial fractures and in very old patients.

It is possible to obtain the fixation necessary for good union by means of the method of extra-articular osteosynthesis just described. This method is capable of wide application, because it is not necessary to put the patient in plaster-of-Paris afterwards—a fact which reduces the risk of mortality. The after-treatment is thus very much simplified.

The conservative treatment, as well as operative treatment with exposure of the fracture, should therefore be replaced by extra-articular osteosynthesis as the standard method.

PHYSICAL DISORDER IN 164 CONSECUTIVE ADMISSIONS TO A MENTAL HOSPITAL

THE INCIDENCE AND SIGNIFICANCE

BY

ROBERT J. PHILLIPS, M.B., B.Ch., B.Sc.

Late Assistant Medical Officer, Glamorgan County Mental Hospital

The existence of certain types of mental disorder which are caused by organic disease is too well known to need emphasis. Physical illness consequent upon mental disorder is equally well known. The extremely large number of physical disorders present in a series of consecutive admissions to the above hospital has indicated the need for an analysis in some detail of the types encountered, and a correlation, if any, between the mental and physical symptoms. This mental hospital serves a wide and thickly populated area, one which has suffered greatly owing to the industrial depression during the past few years. Hence a large number of the cases under consideration were admitted from what have been truly termed "distressed areas." This fact may be of significance as contributing, in the opinion of the author, to an abnormally high incidence of physical disorder in mental admissions.

Nature of Physical Disorders Encountered

Table I classifies in general terms the numbers of those admitted who have been or are suffering from medical, surgical, or gynaecological conditions. It also includes a miscellaneous group which will be described later, and a special group of cases termed "acetonuria" which are considered to be indirectly due to mental illness. From the table it is seen that of the 164 patients admitted 137 were found to suffer from some pathological lesion, but in this figure are included eight cases of senility (patients of 70 years of age or over) and seventeen of general paralysis of the insane. If excluding these, therefore, from the 164 admissions, 112 were considered to be physically unfit, a percentage of 68.

TABLE I

Total admissions	164
Medical conditions	61
Surgical conditions	20
Gynaecological conditions	8
Miscellaneous group	9
Senile cases	8
General paralysis of insane	17
Acetonuric group	14

These cases may also be classified under three distinct headings, dependent upon the connexion with the mental symptoms exhibited by the patient:

1. Patients whose mental symptoms are apparently the direct result of physical disorder—for example, arteriosclerotic dementia.

2. Cases in which the mental and the physical illness vary *pari passu* with one another. Thus, two females were admitted suffering from benign hypertension, and under treatment both physical and mental symptoms improved simultaneously. These cases will be described later in greater detail.

3. Patients with both physical and mental disorders which possess no apparent connexion with one another, and must be regarded as two distinct entities. These are well exemplified by cases with surgical conditions which could not be correlated with the psychoses of these particular patients. In the interests of clarity and detailed analysis it is of advantage to discuss these cases after classification according to the various systems affected.

Circulatory System

Of the total admissions twenty-nine were found to be suffering from some form of cardiovascular change, as shown in the following table:

TABLE II

Hypertension:	No. of Cases
(*a*) Benign	5
(*b*) Malignant	10
Valvular disease of the heart	9
Chronic myocardial disease	5

The cases of benign hypertension are of interest, being good examples of physical and mental disorder varying *pari passu*. Thus on examination three females were found to have an average systolic blood pressure of 190–200 mm. Hg in the absence of any renal lesions. The average age of these patients was 50 years, and consequently the condition might well be termed a "menopausal hypertension." Each patient exhibited similar mental symptoms—namely, nervous and emotional instability, being easily fatigued, readily upset by small everyday worries, and showing a tendency to hypochondriasis. Rest and the administration of bromide and theominal resulted in a simultaneous amelioration of both the physical and the mental symptoms in two of the three cases, with subsequent discharge from the hospital.

The patients with malignant hypertension constitute a fairly definite group in which the mental symptoms in most cases can be attributed to the physical disorder—namely, generalized arteriosclerosis accompanied by renal changes. Three of these were suffering from residual hemiplegia on admission. In six, whose ages varied between 56 and 65 years, the mental state was in the main one of confusion and restlessness, and although no cerebral accident had occurred before admission two died of cerebral haemorrhage during residence. The last case was that of a young male schizophrenic aged 30 years, who had a previous history of acute nephritis and whose physical state on admission was typically that of malignant renal arteriosclerosis. It is, however, realized that this group, which one is apt to class as arteriosclerotic dementia, may not be quite so clear-cut as one might infer, owing to the common incidence of arterial disease in mental patients even at comparatively early ages.

The nine cases of valvular disease of the heart included in this series exhibited no obvious relation to the type of psychosis present. Three of these patients were suffering from mitral stenosis, one of whom incidentally has since developed signs and symptoms of subacute infective endocarditis; three from mitral regurgitation; and three from aortic regurgitation. Again, in the five cases with physical

symptoms and signs sufficient to warrant a diagnosis of chronic myocardial degeneration no obvious correlation between the mental and the physical state could be discerned.

Respiratory, Alimentary, and Urinary Systems

Table III summarizes the various physical conditions met with in these groups.

TABLE III

		No. of Cases
Respiratory diseases	Lobar pneumonia	2
	Pulmonary tuberculosis	2
	Asthma	1
	Emphysema with chronic bronchitis	5
Alimentary diseases	Carcinoma of the stomach	2
	Visceroptosis	2
	Anorexia nervosa	1
Urinary diseases	Renal calculus	1
	Carcinoma of bladder	1

In none of the cases displaying signs and symptoms of pathological changes in the above was there a direct relation between the physical and the mental illnesses, with the possible exception of a case of lobar pneumonia and one of anorexia nervosa. In the former the early pneumonic condition present on the patient's admission was undoubtedly due to exposure, resultant upon his wandering about a mountain-side on a cold wet night in a confused state of mind. In the latter case of anorexia nervosa the patient was a female who, in spite of persistent efforts with oesophageal and rectal feeding, became progressively emaciated and died. During life she exhibited other hysterical phenomena, and was very emotional and depressed. A post-mortem examination revealed no organic cause for her persistent vomiting.

Haemopoietic System

The blood picture in the psychoses has stimulated a certain amount of interest. In the present series, however, the relation between the blood and mental conditions can only be indirect. Thus, of six cases, four suffered from severe secondary anaemia, one from simple achlorhydric anaemia, and one from acute lymphatic leukaemia. The four patients subject to secondary anaemia were all advanced schizophrenics, and it is suggested that the anaemia was consequent upon their extreme apathy and indifference to their physical existence.

Disorders of Metabolism

Nine of the total number of cases admitted were found to be suffering from some definite form of endocrine dysfunction. In view of the recent interest in the relation of the internal secretions to mental disorder (Langdon-Brown, 1936) these cases will bear close analysis. Table IV classifies the types met with.

TABLE IV

		No. of Cases
Thyrotoxicosis	Without exophthalmos	2
	With exophthalmos	1
Myxoedema		1
Diabetes		5

Symptoms of thyrotoxicosis occurred in three female subjects whose ages were 42, 36, and 35 years respectively, early exophthalmos being evident in the last-mentioned case. The clinical picture in each was typical, there being nervousness, thyroid enlargement, a warm skin, fine tremors, palpitation, tachycardia, loss of weight, irritability, and disturbed sleep. The mental picture was also common to all, outstanding features being depression, agitation, and emotional instability, with vague fears of incompetence. Here it is interesting to note that all three cases were of the voluntary class. Treatment with rest and Lugol's solution resulted in a marked simultaneous amelioration of both physical and mental symptoms. Improvement continued to such an extent that when they were discharged, at their own request, they were considered to be recovered. The author regards this relief of mental symptoms by the treatment of an apparent underlying physical disorder as of great significance, and worthy of further investigation in relation to mental disorder.

The case of myxoedema was that of a female aged 58 years who on examination was found to be of sallow complexion, lacking in energy, and slow of speech and cerebration; there was also loss of hair, dryness of skin, and a slow pulse rate. In addition her psychosis was of a chronic delusional type. There was a marked response to treatment with thyroid extract, and she is now fairly bright, energetic, and industrious, but the symptoms of the psychosis remain unaffected. It is thought, in this case, that apart from the mental retardation the physical disorder was unrelated to the mental disturbance.

Diabetes has long been recognized as being due to an impaired pancreatic function, characterized by glycosuria, hyperglycaemia, and a disturbance of carbohydrate, fat, and protein metabolism. Glycosuria and a sustained hyperglycaemia after the administration of glucose occur in certain states of emotional tension. Thus Derrien and Piéron (1923) report a marked increase of blood sugar in officers suffering from psychic disorders as a result of emotional shock, while Drury and Farran-Ridge (1925) state that the renal threshold for sugar is variable among psychotics. The latter two authors, Mann (1925), and others have demonstrated a sustained marked hyperglycaemia in these states, a fact which McCowan and Quastel (1931) have utilized to measure degrees of emotional tension objectively. These series of observations indicate some relation between emotional tension and diabetes, and it is not surprising to find that the five diabetics encountered in this series all showed various degrees of emotional instability. Treatment of the physical condition by means of diet, supplemented when indicated by suitable doses of insulin, resulted in a lowering of the emotional tension in three cases; one case remains unchanged, while the other patient died of myocardial degeneration. From the limited data at my disposal it seems reasonable to assume that mental symptoms may be associated with some chemical influence of the nature of a hormone or internal secretion, and that certain diseases of the endocrine organs may give rise to mental as well as physical upset.

Surgical Conditions

The varied forms of what one might term surgical cases are well shown by Table V.

TABLE V

	No. of Cases
Septic parotitis	1
Facial paralysis	1
Cut throats	3
Carcinoma of breast	1
Rodent ulcer	1
Inguinal hernia	2
Ventral hernia (post-operative)	1
Lumbar hernia (post-operative)	1
Dupuytren's contracture	2
Scoliosis of spine	3
Severe kyphosis of spine	1
Club foot	1
Fractured transverse processes of lumbar vertebrae	1
Acute intestinal obstruction	1

In six cases only can the physical and mental states be associated: (1) The acute septic parotitis occurred in a case of toxic-exhaustive insanity, the infection obviously being an ascending one from a dry foul condition of the mouth. (2) The case of facial paralysis occurred in a male who had attempted suicide by gunshot wound of the head. (3, 4, 5) Three cases of self-inflicted wounds of the throat were the result of acute melancholia. (6) The sixth case where one might correlate the mental and physical states was one in which a male sustained an injury to his back, *x*-ray examination revealing fractured transverse processes of the lumbar vertebrae. In this case the injury appeared to be a contributory cause to the man's state of depression.

Gynaecological Conditions

Routine examination of the pelvic organs was not carried out, except in cases exhibiting definite symptoms making such examination necessary. Thus it may be that a large number of minor gynaecological conditions have been overlooked, but nevertheless eight cases were admitted justifying the above heading, as indicated in Table VI.

TABLE VI

	No. of Cases
Puerperal fever	2
Mastitis	1
Menorrhagia	1
Severe leucorrhoea	2
Uterine prolapse	2

The two suffering from puerperal fever were obviously cases of puerperal insanity. The case of mastitis also occurred during the puerperium, but the patient's symptoms were more suggestive of the katatonic type of schizophrenia, the mastitis arising as a result of non-ability to suckle the child owing to the mental state. There did not appear to be any relation between the psychosis and pelvic disturbances in the remaining five cases.

Miscellaneous Group

Under this heading are grouped the following conditions:

TABLE VII

	No. of Cases
Severe acne vulgaris	2
Universal psoriasis	1
Mercurialism	1
Rheumatoid arthritis	1
Deaf-mutes	2
Post-encephalitic Parkinsonism	2

The cases of severe acne vulgaris occurred in epileptics who had been taking large doses of bromide prior to admission. The association appears obvious, and is further borne out by the fact that several other epileptics showed milder degrees of acne, also due in part to uncontrolled bromide therapy.

One case of universal psoriasis seems worth including in the series of physical disorders, although many other cases exhibited milder degrees of the same skin affection.

An interesting case of mercurialism occurred in a young male congenital syphilitic who, before admission, had been receiving mercurial inunction over a prolonged period. There was well-marked salivation, stomatitis, metallic smell, and offensive breath.

Rheumatoid arthritis was seen in one male suffering from severe agitated melancholia. Movement of joints was both painful and difficult, yet his extreme agitation made movement imperative—a triumph of mind over body!

The physical state of deaf-mutism was encountered in two male patients. In each the defect was congenital in origin. Both had been inmates of deaf-and-dumb institutions, where they had learnt trades and become useful members of the community. On discharge from such an institution one developed paranoid ideas, while the other became a shut-in personality leading an aimless and indifferent existence. It seems feasible to associate their physical affliction with their respective reaction types.

The physical and mental manifestations in the chronic form of encephalitis lethargica were clearly seen in two cases of Parkinsonism. Both were males, their ages 23 and 30 years, with a previous history of "sleeping sickness" at an early age.

Acetonuric Group

The occurrence of acetonuria, apart from that found associated with diabetes, in any recent admission to a mental hospital is of great interest. Fourteen out of the 164 patients whose cases are discussed here showed greater or lesser degrees of acetonuria on admission. A careful survey showed that all were in a debilitated state, with varying degrees of cachexia, exhaustion, cyanosis, furred and dry tongues, and foul stools. Their history before admission showed that they had invariably been "refusing food," were "extremely restless and agitated," or had been in a "stuporous confused state," taking but little nourishment. The inference is that all these patients were on admission suffering from a "semi-starvation state" resulting in an acidosis. Such a statement is fully corroborated by the fact that the acetonuria in all cases cleared within three to ten days following admission and treatment, the patients being more composed, taking their own nourishment or being artificially fed; the feeds contained appropriate quantities of glucose according to the severity of the case. Whilst the general symptoms resulting in the ketosis were similar, the psychosis producing the symptoms varied as illustrated in Table VIII.

TABLE VIII

Type of Psychosis	No. of Cases
Toxic-exhaustive insanity	3
Acute mania	2
Epileptic insanity	2
Agitated melancholia	1
Chronic melancholia	1
Chronic mania	1
Katatonic stupor	1
Benign stupor	1
Katatonic excitement	1
Senile dementia	1

These comments concerning the general incidence of ketosis in a variety of psychoses are of interest in view of the findings of Shaw (1920) and Thomas (1922), whose observations were limited to psychoses of the toxic and confused type. Such observations also emphasize the necessity for including an adequate supply of carbohydrate in the diet of patients who require artificial feeding, and as a general rule it has been found that the addition of about 3 oz. of glucose daily to the feed will counteract any danger of an acidosis.

Although seventeen cases of general paralysis of the insane and eight senile cases were admitted in this series, these are so essentially normal types of patient that it has not been deemed of sufficient interest to discuss them further or even to include them under the heading of abnormal physical states.

The diagnoses of the cases reviewed have when necessary been confirmed by the consulting staff of the hospital, by laboratory methods, by *x*-ray examinations, by operative findings, and, in a few, by necropsy.

Discussion

In this paper there is no desire to emphasize a "far-fetched" relationship between mental and physical disorders. The extraordinarily high incidence of physical illness among a series of recent admissions to this hospital, however, as indicated beforehand, has made necessary some analysis of the two types of illness. The facts here reported indicate that, in general, the physical and mental disorders are two separate entities, which require treatment as such. Thus if the cases here reported are reclassified as suggested in the early paragraphs, then the significance of any relation, or absence of it, between the two types of illness becomes very obvious. Such a classification is broadly given in Tables IX and X.

TABLE IX.—(*a*) *Cases in which there appears to be a Direct Relation between Mental and Physical States*

	No. of Cases
Anorexia nervosa	1
Puerperal fever	2
Arteriosclerotic dementia	9
Senile dementia	8
General paralysis of the insane	17
Post-encephalitic Parkinsonism	2
	39

Excluding those cases of general paralysis and senility, this total is much reduced—namely, fourteen.

TABLE X.—(*b*) *Cases in which there is an Apparent Association between Mental and Physical States*

	No. of Cases
Benign hypertension	2
Secondary anaemia	4
Thyrotoxicosis	3
Diabetes	3
Surgical cases	6
Mastitis	1
Acetonuria	14
Deaf-mutism	2
	35

In the remaining cases (ninety) there is no apparent connexion between the physical and the mental disease, which therefore must be considered as separate and distinct entities.

The factors responsible for the extremely large number of physical disorders encountered are not obvious. The types met with are too varied to formulate any general aetiological hypothesis to account for the high incidence. Few, if any, of the conditions met with could be explained on the grounds of previous family history: no reason can be given on epidemiological grounds. A partial explanation is that a number of the physical disorders are resultant upon mental conditions: thus patients, because they are mentally ill, neglect their physical well-being, with a consequent lowering of resistance. Another factor that does suggest itself as contributing greatly is the economic conditions of the areas from which these patients were drawn. There are insufficient data upon which to formulate a definite theory, but the fact that most of the males admitted to this hospital must be classed as permanently unemployed does suggest the possibility of malnutrition, with its consequent lowering of physical reserves with which to combat the physical strains imposed upon them as a result of their mental disorder. Evidence of malnutrition is afforded when it can be stated that the average weight on admission of the males in this series was nine and a half pounds below that of the average man. It was not possible to obtain the weights of all the females examined, but an analysis of fifty-one cases showed an under-weight of four and a quarter pounds. Average weights were calculated according to age and height, and compared with figures compiled by the Institute of Actuaries.

In a case presenting any mental abnormality the first essential is a thorough physical examination in order to discover the causal factors and if possible eliminate them. Too often it is assumed that the physical condition of a mental patient is good; thus the examination is far too brief and cursory. Hence it becomes apparent that the incidence of physical illness among the patients is a problem which every mental hospital must solve independently of and distinct from its main function, and one which it must, in respect of both resident and consultant staffs, equip itself to meet.

The value of a well-equipped laboratory dealing with the problems of bacteriology, pathology, and biochemistry is emphasized. The need for a "treatment centre," involving radiological service, operating theatre, dental department, equipment for heliotherapy, hydrotherapy, and electrotherapy, and a staff trained to deal with general as well as mental work, is well appreciated.

There is, indeed, an obvious need for a miniature general hospital, with all its numerous departments, within the organization of each mental hospital, and consequently a real necessity for a resident house-physician whose sole function would be the care of the bodily ailments of the patients. It is only when such a burden is removed from the shoulders of the resident mental medical officers that the problems of mental disorders, uncomplicated by other factors, can be fruitfully investigated.

I wish to acknowledge the keen interest taken in all the various aspects of this work by the medical superintendent, Dr. D. R. Owen, and in addition thank him for permission to report on the cases admitted to this hospital.

REFERENCES

Derrien and Piéron (1923). *J. Psychol.*, **20**, 16.
Drury and Farran-Ridge (1925). *J. Ment. Sci.*, **71**, 8.
Langdon-Brown (1936). *Practitioner*, **137**, 817.
McCowan and Quastel (1931). *J. Ment. Sci.*, **77**, 525.
Mann (1925). Ibid., **71**, 443.
Shaw (1920). Ibid., **66**, 244.
Thomas (1922). *J. Neurol. Psychopath.*, **111**, 120.

The fourth International Paediatric Congress will be held in Rome on September 27, 28, 29, and 30, under the presidency of Professor Spolverini. A discussion on neuropsychic diseases in paediatrics from the clinical and social points of view will be opened by Professor Jundell (Stockholm), Professor Glanzmann (Berne), and Dr. Allen of Philadelphia; Dr. Dingwall Fordyce of Liverpool will also take part. Mineral and water metabolism during early infancy and its relationship to artificial feeding will be discussed by Professor Noah Morris (Glasgow), Professor McQuarrie (Minneapolis), Dr. Spermasky (Moscow), and Dr. Czapo (Budapest). Problems of infantile tuberculosis will be considered in relation to (*a*) the modern study of the ultra-virus, (*b*) contagiousness on the part of the infant, and (*c*) prophylaxis and therapy. Professor Dufourt (Lyons), Professor Cohen (Brussels), and Professor Valtis (Athens) will introduce the first section, Professor Wallgren (Gothenburg), Dr. Kissel (Moscow), and Dr. Capon (Liverpool) the second, and Professor Noeggerath (Freiburg), Dr. Chester Stewart (Minneapolis), and Dr. Armand-Delille (Paris) the third. Visits to the paediatric institutions in the neighbourhood and to the monuments of Ancient Rome, and a tour of Naples, Capri, and Pompeii, extending over three days and following immediately on the conclusion of the congress, have been arranged. Further information may be obtained from Dr. Leonard Findlay (Secretary of the British Committee) and details regarding railway facilities and hotel reservations from C.I.T., 75, Regent Street, London, or other travel agencies.

RUPTURE OF THE PREGNANT UTERUS FROM INDIRECT INJURY

BY

GRACE STAPLETON, M.D., B.S.,Lond., M.C.O.G.

Professor of Obstetrics and Gynaecology, Lady Hardinge Medical College, New Delhi

As very few cases of rupture of the uterus from indirect injury, when advanced in pregnancy, have been recorded, it was thought worth while to report the following case.

Case Record

A Hindu primigravida aged 17 was admitted on February 20, 1937, to the Lady Hardinge Hospital, New Delhi, from a distant village. She was at full term, but had not come into labour, and the relatives were doubtful if the foetus was still alive, as the abdomen had been getting smaller since the patient had had a fall of some 12 feet from a first-floor veranda ten days previously. In other ways she was considered to have entirely recovered from the accident. The full history was not obtained till some days later; it was then said that she had lost her balance over a low parapet and fallen on her right side, being stunned for four or five minutes. She was picked up, and for the next few days stayed in bed. She complained of pain, mostly over the right loin and hip, and vomited several times, but this passed off gradually, and by the end of about five days she was able to get up and take food as usual. The bowels acted normally and she never complained of undue abdominal distension. She was seen by a doctor once, but he apparently found nothing very serious, and as the girl was recovering the relatives did not trouble to call him again. Foetal movements were thought to have been felt for three or four days after the accident, but the patient was not very sure. A blood-stained discharge was noticed four days before admission, and this had continued to a slight extent. Before this pregnancy menstruation had been regular and of the 3-4/30 day type.

Condition on Admission

The patient was a rather thin, slight girl with sallow complexion, and was fairly well developed for her age. Her mental condition was rather dull and she answered questions unwillingly. There was only slight anaemia. She moved about the bed easily and did not complain of any pain. The tongue was moderately coated; temperature 98.4° F., pulse 88, respirations 20. There were signs of bronchitis in both lungs, especially at the bases, but no complaint of cough was made.

The abdomen was enlarged with what appeared to be a full-term pregnancy in the left occipito-anterior position, with the head just over the brim, but no foetal movements could be detected and no heart sound was heard. No uterine contractions were felt. There was no abnormal distension or tenderness in any part of the abdomen.

On vaginal examination the os was seen to be closed and the cervix not taken up, and the presenting head could be palpated high up in the brim. The pelvis appeared quite normal in size. There was a little blood-stained discharge.

Progress of the Case

As there was no suspicion of ruptured uterus at that time, medical induction of labour with castor oil, quinine, and enema was tried. Two days later there were no pains and only a slight show, so she was re-examined, and as the cervix was still not taken up and a piece of membrane was felt protruding from it a laminaria tent was introduced and the vagina packed with gauze soaked in acriflavine and glycerin. The temperature was now normal and the pulse rate not above 90. The next day the pack and tent were removed and a douche given, and as the head bones of the macerated foetus could be just felt above the internal os three tents were introduced into the cervical canal and another vaginal pack inserted. The patient's general condition was unaltered and she still had no pains, but the pulse rate had risen to 98. The following morning—that is, the 24th—she was decidedly worse, though it was reported that she had had a fairly good night. For the first time there was some fullness and resistance at the sides and upper part of the abdomen, and she seemed anxious and nervous, though she would not acknowledge that she had any pain. The foetus was apparently in the same position. The pulse had risen from 116 at 6 a.m. to 148 at 10 a.m., and was very poor in volume; the temperature was 101°. The vaginal pack and tents were removed and, after douching, a finger was easily introduced through the cervix, but now the lower uterine segment was found empty except for the extreme edge of the placenta. Laparotomy was decided on, as evidently the foetus had been at least partially displaced from the uterus by the tents. On opening the abdomen by a median subumbilical incision the first thing encountered was the very macerated foetus lying free among the intestines, with the placenta low down on the left in front; the edge was still attached just inside the uterus, which was small, had a large gaping transverse tear right across the fundus, and had retracted and involuted in the shape of a cup. There was a little brownish free fluid in the peritoneal cavity but no sign of recent bleeding or general peritonitis; a small amount of lymph was present, however, round the pelvis, and the anterior part of the uterus was adherent to the bladder. As the patient's condition under the anaesthetic was very poor, the foetus and placenta were removed and the tear hastily stitched up with catgut and the wound closed after providing for drainage at the lower end. She was too ill to undergo hysterectomy.

After the operation her condition gave a good deal of anxiety as she developed pleurisy, followed by pneumonia, first at the base of the left lung and then in the corresponding position on the right side, and the signs persisted, though she complained very little of her chest. At first there was no abdominal distension and the wound seemed to be healing normally, but at the end of a week the edges began to fall apart, and later the whole wound gaped widely, as if the patient's powers of healing were at a minimum. She then began to show signs of partial intestinal obstruction, with vomiting on and off, but only a li. le distension. She seemed too ill to withstand another abdominal operation, especially as it was doubtful if the stitches would take. Another factor which had to be considered was that her relatives were ignorant peasants who would probably not only have refused to permit the operation if it had been suggested, but might have removed her promptly from the hospital and left her without medical aid and any hope of recovery. She was kept on rectal salines, which were retained well, and was given very little by the mouth except glucose water and fruit juice. A faecal fistula burst at the lower end of the wound on the eighteenth day after operation, and in two or three days she began to improve. The fistula healed spontaneously after eight days; her appetite then returned and she started to gain weight. The lungs were a long time clearing up, and did not become normal for quite another month. The abdominal wound also took a very long time to heal, but by May 11 the granulating area was only the size of a pea and the patient was discharged a few days later. By that time her general condition was good; her mental condition was quite bright, and she looked years younger than on admission.

The last vaginal examination was made on May 4, when the uterus was felt to be in good position and fairly normal in size and shape; the cervix was small and closed and the fornices were clear, but there appeared to be some adhesions between the fundus and the lower end of the abdominal wound.

Comments

On looking up the literature on uterine rupture one finds that from time to time cases due to direct injury, apart from labour and attempts at criminal abortion, have been recorded as well as a fair number of cases of so-called "spontaneous rupture," excluding those due to the giving

way of Caesarean and other scars. One can, however, find very few cases following severe indirect injury, although in some of the spontaneous cases a history of slight trauma or strain was recorded. DeLee (1933) states that only under the most violent indirect injury will a healthy uterus tear. According to the review by Kane (1923) the predisposing cause in multigravidae, apart from a clear history of previous uterine trauma or disease, appears to be thinning or hyaline degeneration of the uterine wall left from previous pregnancies, but in primigravidae some other reason must be looked for. It is suggested that some degree of infantilism may be present in certain cases that have no gross abnormality such as a poorly developed uterine cornu; but that is not very likely, as most patients in this class are sterile and menstruate scantily if at all regularly. In 1926 Riddell collected twenty reported cases of rupture during pregnancy; and among these no fewer than nine patients had had previous uterine disease and six had been subjected to instrumental intervention at some distant date, and only three were primigravidae. One-third of the total cases had terminated before the sixth month. In the present case there was no predisposing cause, as the patient had been free of uterine disease, and though she was rather young she had menstruated regularly for at least one or two years before conception, so it was unlikely her uterus was underdeveloped. In certain of the reported cases, such as that of Reeder and Moore (1935), the primary injury seemed to have been sufficient to cause a haematoma in the uterine muscle, and the onset of labour pains shortly afterwards completed the rupture and brought on acute symptoms of internal haemorrhage with shock. In this case, however, there was no history of labour pains, and so it must be concluded that the fall itself was the cause of the complete tear.

The classical clinical signs and symptoms of rupture of the uterus—that is, haemorrhage, external or internal, shock, and those of peritonitis following the death of the child—were conspicuous by their absence, though the patient had vomited, and had experienced enough discomfort to keep her in bed for a few days. In some of the published cases—for example, those of DeLee (1904), Green-Armytage (1913), and Gordon Ley (1920)—haemorrhage was very great, and in that of Green-Armytage led to death before there was even time for laparotomy. By the time the present patient came to hospital she had had only a small amount of toxaemia, and not until the tents had caused slight displacement of the head from where it had been resting on the widely open uterus did more acute symptoms arise. By itself the macerated foetus lying among the intestines was not sufficient to produce any general peritoneal irritation. There was also no evidence that she had had any marked internal haemorrhage, although the site of the tear, transversely across the fundus from one corner to the other, was almost exactly that shown in the sketch of Green-Armytage's specimen.

When treatment was considered there was the choice of either doing subtotal hysterectomy, which would have been preferable if the patient had been older, or of repairing the tear, keeping in mind, of course, the possibility of further pregnancy and the likelihood of the scar giving way again in the later months. In Gordon Ley's case of repair the patient did become pregnant again within a short time, and was successfully delivered normally at full term without any fresh uterine damage; but the risk is considerable, especially if the patient lives far from adequate medical aid. In the present case the uterine scar was not likely to be very satisfactory, as there was not time to trim the edges and stitch the tear in the usual layers owing to the patient's very poor condition on the table. She was only 17, and had not long been married, and though sterilization might have been performed her life would then have been miserable, owing to the social customs in her part of the country. She will therefore need very close attention should any sign of pregnancy again occur.

Difficulty in Diagnosis

The most difficult point in these cases is the diagnosis before operation. If there is much external bleeding without signs of peritoneal reaction accidental haemorrhage or placenta praevia is suggested, or if it occurs in the earlier months of pregnancy and the signs are mainly those of intra-abdominal haemorrhage, then a ruptured ectopic gestation or rupture of a poorly developed uterine horn may be the cause. Only in those cases in which the foetus can be felt without difficulty or moved under the abdominal wall is diagnosis easy. In this case, when the patient showed no signs of coming into labour after medical induction, and when no contractions of the uterine wall over the foetus could be made out clearly, the diagnosis of ruptured uterus was considered, but was thought most unlikely as she was a primigravida with tight abdominal walls, and the position of the foetus had remained as in an ordinary left occipito-anterior presentation, and she had seemed so well for the first three days in hospital. It was, however, the fact that the head of the foetus could be palpated easily through the fornices and, when the cervix was sufficiently dilated, through the os also, that had made one think such a diagnosis quite impossible.

Summary

1. A case of complete rupture of the uterus from indirect injury in a primigravida of 17 is reported.

2. Recovery occurred though operation was not performed until fourteen days after the injury.

3. Many of the classical signs and symptoms were absent.

4. Certain points in the aetiology, symptoms and signs, treatment, and diagnosis are considered.

REFERENCES

DeLee, J. B. (1904). *Amer. J. Obstet. Gynec.*, **50**, 814.
—— (1933). *Principles and Practice of Obstetrics*, Philadelphia.
Green-Armytage, V. B. (1913). *J. Obstet. Gynaec. Brit. Emp.*, **24**, 174.
Kane, H. F. (1923). *Amer. J. Obstet. Gynec.*, **4**, 158.
Ley, Gordon (1920). *Proc. roy. Soc. Med.* (Sect. Obstet. and Gynaec.), **13**, 1.
Reeder, G. S., and Moore, C. G. (1935). *Amer. J. Obstet. Gynec.*, **29**, 439.
Riddell, J. (1926). *J. Obstet. Gynaec. Brit. Emp.*, **33**, 1.

C. J. W. Bisdom (*Maandschr. Kindergeneesk.*, May, 1937, p. 332) records two cases of alcohol and nicotine intoxication in infants. The first was a male infant, aged 8 days, the first child of a mother, aged 17, who had drunk a whole bottle of port (250 grammes) in the course of twenty-four hours. The symptoms consisted in a state of deep sleep from which the child could not be wakened for twenty-four hours, after which he became normal again. Alcohol was found to be present both in the mother's and infant's blood. The second case was a breast-fed infant, aged 6 weeks, the child of very nervous parents. The mother had been in the habit of smoking twenty cigarettes a day. The child's symptoms were restlessness, vomiting, diarrhoea, rapid pulse, and circulatory disturbances. Nicotine was found in the mother's milk. Symptomatic treatment was applied and the infant recovered.

EPIDEMIC OF PARATYPHOID B FEVER IN LIVERPOOL AND DISTRICT

BY

W. M. FRAZER, M.D., M.Sc., D.P.H.

Medical Officer of Health, City and Port of Liverpool; Professor of Hygiene, University of Liverpool

B. T. J. GLOVER, M.D., D.P.H.

Senior Assistant Medical Officer of Health, City of Liverpool; Lecturer in Public Health Administration, University of Liverpool

AND

V. GLASS, M.B., B.S., M.R.C.S., L.R.C.P.

Junior Assistant City Bacteriologist

On January 4, 1937, was notified the first of a series of cases of paratyphoid B fever in an outbreak which aggregated 132 primary cases before it was ended, of which 107 cases were in Liverpool, sixteen in the adjoining town of Bootle, seven in the rural districts surrounding Liverpool and Bootle, and two in North Wales. The quick succession of notifications—there were seventeen in the first week and thirty-three in the second week—and the widespread distribution in the city led to an immediate examination of samples of water from both Vyrnwy and Rivington supplies. The results were entirely negative, as indeed had been the results of the frequent routine bacteriological water examinations during the previous two months.

As the cases were notified they were charted on a graph according to their date of onset and entered on a map in accordance with the site of residence of the patients. Two features of the outbreak were quickly discerned—namely, that the majority of the cases had their date of onset at the end of December and beginning of January, and that the south end of Liverpool was escaping completely. One case notified from the south of Liverpool which appeared to be an exception proved to be one of pneumonia.

The history given by the majority of the patients showed that they obtained their milk and/or bread and/or butter, and sometimes other foodstuffs, from the same firm, hereinafter called firm A. Inquiries revealed that firm A traded through many retail shops over an area corresponding with that covered by the outbreak, and that the south end of Liverpool was supplied by an independent branch of the same firm, obtaining its food supplies from different sources. Further inquiry revealed that although some of the patients had eaten butter made by firm A, most of the butter they had purchased was of Empire or foreign origin, and had been delivered to each retail shop in the kegs in which it had been imported, there to be opened and sold in quantities to meet customers' requirements. Attention was therefore concentrated on milk and bread.

Firm A prepares pasteurized and sterilized milk, and sells approximately 8,500 gallons of the former and 1,000 gallons of the latter daily, approximately one-fifth of the milk consumed daily in Liverpool and Bootle. Out of 123 patients from whom a food history was obtained seventy-five consumed milk from this source. The pasteurizing plant is one of the latest design, and is under the regular supervision of the staff of the Health Department because this firm is one approved for the supply of milk to school children under the Milk Marketing Board's scheme. The processing and bottling arrangements are such that the milk is not touched by hand subsequent to pasteurization. It appeared, therefore, to be unlikely that the outbreak was attributable to this particular milk supply. Confirmatory support for this view was, first, that the children affected were not those who were attending the schools supplied by firm A except in a few instances, and, secondly, that the outbreak ought to have been a much greater one if it had been due to the infection of milk which was so high a proportion of the total milk consumed in the city. For these reasons attention was concentrated on the bread baked by this firm. Perhaps it is needless to add that in spite of this conclusion exhaustive inquiries were made into the recent health of the dairy employees, and that steps of a general nature were taken, such as additional care of the hands of the staff and so on.

Source of the Infection

The bakery is a very large one and is exceedingly well conducted. Out of 123 patients from whom a food history was obtained seventy-six (62 per cent.) regularly consumed bread from this source. The output is approximately a quarter of a million loaves a week. As this output is but a small fraction of the total number of loaves produced in Liverpool, the very high proportion of patients who ate this bread is significant. Both separated milk and water are used in baking, and although it was thought to be unlikely that anything added to the loaf before baking was the cause of the epidemic, inquiries were made into the sources of both. The water was city water stored in a tank. An examination revealed nothing of significance. The separated milk was efficiently pasteurized before use and was consequently above suspicion.

Observations were made during the night while the staff were carrying out their various duties, and it was noted that twenty employees were engaged in handling loaves after they had cooled, or were touching trays, etc., with which cold loaves would subsequently be brought into contact. It was decided to examine the blood of each of these twenty employees. The blood of five of them revealed the presence of agglutinins. Two had been inoculated with T.A.B. in the Army and in the Naval Reserve respectively, and their blood revealed the agglutinins usually found after inoculation. The blood of two others was positive to *Bact. typhosum* (H) 1 in 20. Lastly a male employee (G. E. T., aged 20), who had not been inoculated and who gave no history of illness like typhoid, either recent or remote, yielded a blood which gave a positive agglutination 1 in 20 to *Bact. paratyphosum* B (H), but was negative 1 in 20 to *Bact. typhosum* (H) and (O), and *Bact. paratyphosum* B (O), *Bact. paratyphosum* A (H), and the Salmonella group. This man was admitted to hospital under observation on February 9. He proved to be a carrier of *Bact. paratyphosum* B, the organism being recovered from both the faeces and the urine on the following occasions:

February	9	F−	U+
„	10	F−	U+
„	11 (*a*)	F+	U− (*b*) F− U−
„	12 (*a*)	F−	U− (*b*) F− U−
„	17	F−	U+
„	18	F+	U+
„	19	F+	U+
„	20	F−	U+
„	22	F−	U−
„	23	F+	U+
„	24	F+	U+
March	1	F−	U−
„	8	F−	U+
„	15	F−	U−
„	18	F−	U−
„	22	F−	U−

(*a*) and (*b*) refer to separate samples on the same day.

The patient was discharged from hospital on March 27.

This carrier had been employed by the firm for two and a half years, for eighteen months of which time he had been handling bread after baking. Except for four days' absence with tonsillitis two years ago there was no illness which prevented him from working. He had had measles when a child, and the only other illness he could remember

was an operation on his elbow in May, 1933. Inquiries at the hospital where the operation was performed revealed that he was admitted for the investigation of a bone condition which was puzzling, looking neither like malignant disease nor ordinary osteomyelitis. The operation revealed a chronic osteitis of unknown origin accompanied by pus in which no organisms were found. In the opinion of the surgeon the condition was not incompatible with the belief that the abscess was of typhoid or paratyphoid origin.

The carrier had lived all his life with his father and mother. He is the eldest of six children, of whom the youngest is three years old. No member of the family gives any history of having suffered from typhoid fever or any typhoid-like illness.

Chart of Cases

The following chart shows the daily notification of 123 cases in Liverpool and Bootle in which the diagnosis was subsequently verified, the dates of onset of the 132 cases which occurred altogether, and a graphic representation of the dates of infection on the assumption that the average incubation period was twelve days. There appears to be a consensus of opinion that the average incubation period of paratyphoid fever is shorter than that of typhoid, though the variations in the incubation period of the former may be greater than those in the latter. For our present purpose the assumption of an average incubation period of twelve days is not unreasonable.

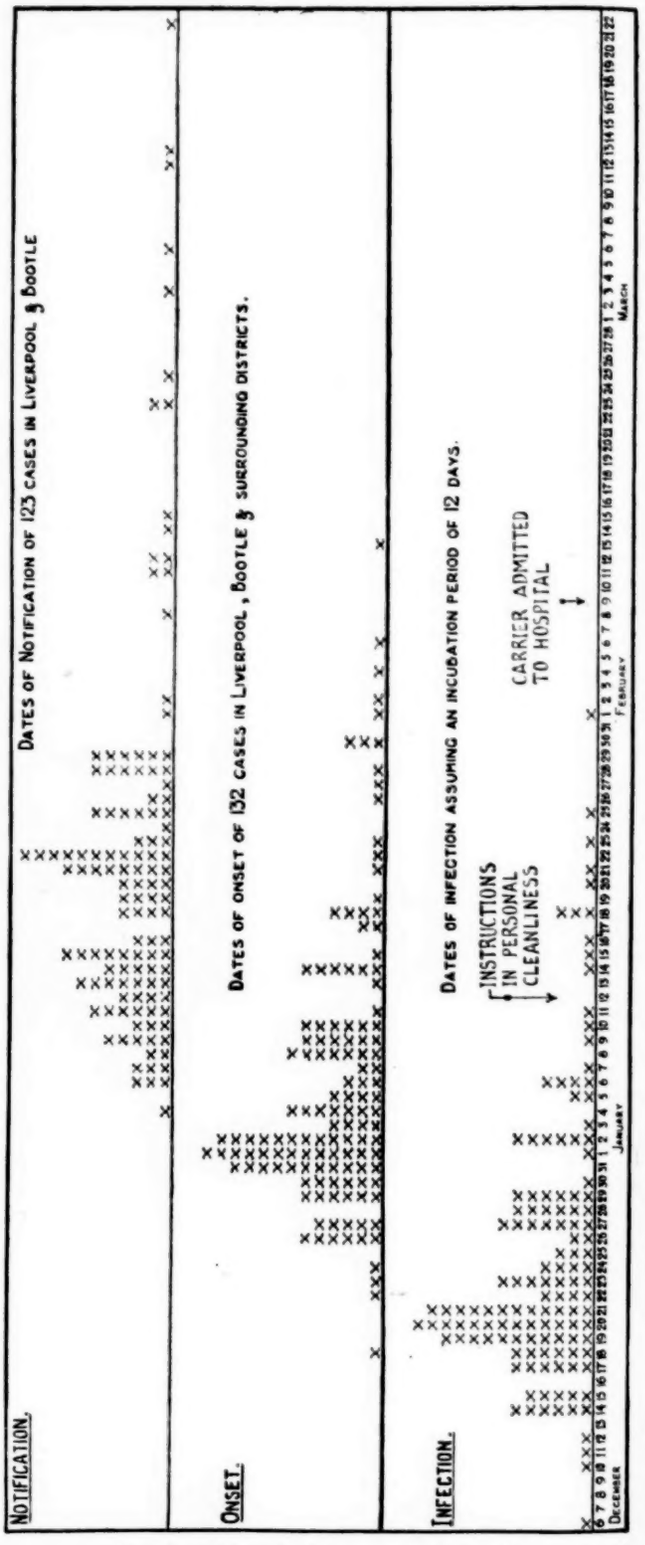
It will be observed that there were no cases with a date of infection subsequent to the admission of the carrier to hospital. At the same time it is noteworthy that the epidemic was waning for a month before his admission. There were 118 cases infected prior to January 8, and only fourteen between that date and February 9, when the carrier was admitted to hospital. This downward trend of the cases after January 8 may be accounted for partly by the increased precautions which were taken by the bakery staff in washing their hands after visiting the lavatory. It was on January 12 that special instructions were given to the staffs of both the dairy and the bakery in regard to this matter. If this carrier was in fact the cause of this outbreak, contaminating the surface of loaves with infection on his hands, it appears to be necessary to assume that the degree of contamination diminished with improvements in personal cleanliness; it may also be necessary to assume that the excretion of organisms in the urine and faeces was intermittent and variable in amount, an assumption not unreasonable in view of the intermittency of excretion during his sojourn in hospital. Unfortunately no attempt was made to estimate the number of the organisms he was excreting. There is a record, however, that a faecal specimen on February 11 yielded no organisms on direct plating, but that they were found after enrichment. The number of organisms in this specimen must therefore have been small.

Another feature of the chart is that 111 cases had been infected (assuming an incubation period of twelve days) before the first notification was received (January 4), leaving only twenty-one cases to be infected subsequently. The infection had reached the great majority of the patients before its existence was suspected.

The age and sex distribution of the cases is as follows:

Age ..	Under 1	1+	5+	10+	20+	30+	40+	50+	70+	Totals	
Males..	2	8	18	17	11	4	5	1	1	67	132
Females	1	6	10	20	11	6	6	5	0	65	

The even distribution between males and females, not only in the totals but also at different ages, suggests infected food which is consumed by all, irrespective of age and sex. Bread as the infected food is not incompatible with this. Of the three children under 1 year who were regarded as cases, two were doubtful. The one in which the diagnosis was confirmed by finding the causal organism was a patient whose parents had given it crusts to chew from bread derived from firm A.



Value of Faecal Cultures in Diagnosis

In a paper to be published shortly by Professor H. D. Wright, the city bacteriologist, and one of us (V. G.), detailed reference is made to the value in diagnosis of faecal cultures at different stages of the disease. Out of 124 cases in respect of which there was information on this point, 83 per cent. of the faecal specimens submitted for examination during the first week of illness were

positive. The corresponding figures for the second, third, and fourth weeks of illness were that 94.2 per cent., 92 per cent., and 87.5 per cent. respectively of patients had positive stools. In the case of patients in their fifth week of illness all the faecal specimens were positive. The corresponding figures for the sixth and seventh weeks were 75 per cent. and 77.7 per cent. respectively. The isolation of the causal organism from the stools is of great value in diagnosis even so early in the illness as the first week, and even so late as the seventh week there is a good chance of isolating the *Bact. paratyphosum* B from the first specimen of faeces submitted. Another interesting feature to which attention is called in the paper alluded to is the rate of disappearance of *Bact. paratyphosum* B from the faeces. Fifty per cent. of the patients presented positive faeces in the seventh week of illness and 20 per cent. were still excreting the organism in the ninth week.

An attempt was made to determine the survival of *Bact. paratyphosum* B on bread crusts. Three experiments were done with the strain isolated from the carrier. A slice half a centimetre thick was cut off the end of a fresh paper-wrapped loaf. This was cut into small rectangular pieces 1/2 × 1 cm., which were placed in dry sterile Petri dishes with the crust uppermost. Each crust surface was smeared with a loopful of a saline suspension containing a known number of organisms from an agar culture. The fluid disappeared into the substance of the crust remarkably quickly. The Petri dishes containing the inoculated crusts well separated from one another were stored in a dark cupboard at room temperature. At various intervals after inoculation a piece was removed from the dish and dropped into a tube of tetrathionate broth, any growth subsequently being fully identified serologically. With an inoculum of four million organisms *Bact. paratyphosum* B was recovered from the crust on the seventeenth day but not on the twenty-second or twenty-third day. When only 120 organisms were employed recovery was possible on the sixth day but not on the seventh or twelfth day. In another experiment with six million organisms from a broth culture the crusts still yielded cultures on the thirty-third day, by which time the material under examination was exhausted. It was not possible to be satisfied that any actual multiplication of the organisms occurred in the crust. It is evident that they can remain alive for a considerable time.

Tests to determine the similarity of organisms from patients in the epidemic were undertaken. M. Kristensen and K. Bojlén (1929) have proposed to differentiate five groups of *Bact. paratyphosum B* according to the rate of fermentation of rhamnose, the fermentation of inosite, and behaviour in the Bitter test (1926), which is also dependent on rhamnose fermentation. These tests were made on ninety-five strains from forty-eight cases (including the carrier). All strains fell into the same group, Kristensen and Bojlén's group R_3I_1, the features of which are that inosite is readily fermented, rhamnose slowly, and the Bitter test is negative. Eight other strains from four cases not associated with the epidemic fell into the same group.

Course of the Illness

Eighty-seven cases were treated in the Fazakerley Fever Hospital, and the following observations are from notes supplied by Dr. A. E. Hodgson, the medical superintendent. With a few exceptions the course of illness was uneventful and free from severe symptoms. Forty-one patients (47 per cent.) exhibited a rash and two had intestinal haemorrhage. There was no example of perforation of the intestine. It was noteworthy that in children the onset was abrupt, with abdominal symptoms simulating an "acute abdomen." In three cases the carrier state persisted for a long time. In one case (J. P., female, aged 57 years) the date of onset was December 26, 1936, and organisms were isolated from the faeces so late as June 19, 1937. This patient was still in hospital on June 21. The second case (H. W., female, aged 38 years), with date of onset January 3, 1937, was a carrier until May 26. The third case (H. N., female, aged 42 years), with date of onset January 9, developed cholecystitis. The gall-bladder was drained and *Bact. paratyphosum* B was isolated (June 5) from the pus.

The part played in diagnosis by bacteriological examination was a prominent one. Out of the 123 cases occurring in Liverpool and Bootle the causal organism was recovered from 111 patients, these specimens being examined in the city laboratory in 109 instances. Of the other twelve cases the diagnosis was confirmed by serological examination in nine instances. In three cases only was the diagnosis made on clinical grounds alone.

There were eleven deaths among the 123 cases in Liverpool and Bootle, a fatality rate of 9 per cent.

Summary

1. An outbreak of paratyphoid B fever occurred in Liverpool and Bootle at the end of 1936 and beginning of 1937, with 123 cases and eleven deaths. An additional nine cases in rural districts were also considered to be connected with this outbreak.

2. The circumstances of the rise and decline of the epidemic were not incompatible with the belief that it was due to the infection of loaves of bread handled by a carrier of *Bact. paratyphosum* B who was discovered in a bakery from which was derived the bread consumed by 62 per cent. of the patients.

3. The isolation of the causal organism from the stools of patients proved to be a great aid to diagnosis so early in the illness as the first week. Even as late as the seventh week there is a good chance of isolating the organism.

4. Fifty per cent. of the patients presented positive stools in the seventh week of illness, and 20 per cent. were still excreting the organism in the ninth week.

5. Ninety-five strains of *Bact. paratyphosum* B isolated from forty-eight patients all fell within Kristensen and Bojlén's group R_3I_1.

6. The survival of *Bact. paratyphosum* B on bread crusts was established. A heavy inoculum (6 million organisms) survived at least thirty-three days, an inoculum of 4 million organisms survived seventeen days, and a light dosage of 120 organisms was recovered on the sixth day.

7. With few exceptions patients made uneventful recoveries. Forty-seven per cent. exhibited a rash. In children the onset was abrupt with abdominal symptoms simulating an "acute abdomen." Three cases, all adult females, persisted as carriers for five months or more.

Acknowledgements are due to the city bacteriologist (Professor H. D. Wright) for the bacteriological information contained in this report; to Dr. Hodgson, the medical superintendent of the Fazakerley Isolation Hospital, for clinical details; and to the medical officers of health of Bootle, Waterloo and Seaforth, Whiston, West Lancashire Rural District, Great Crosby, Litherland, Huyton, and the Caernarvonshire Combined Sanitary Districts for information relating to cases which occurred in their districts.

REFERENCES

Bitter, L., Weigmann, F., and Habs, H. (1926). *Münch. med. Wschr.*, **73**, 940.
Kristensen, M., and Bojlén, K. (1929). *Zbl. Bakt.*, **114**, 86.

G. W. Ronaldson (*Brit. J. Child. Dis.*, April–June, 1937, p. 99) records two personal cases of morbilli bullosi, one of which was a girl, aged 4, and the other a female infant, aged 10 months, who died. He classifies the reported cases of bullous measles as follows: (1) pemphigus with a morbilliform eruption; (2) true bullous measles—that is, cases of measles with anomalous elements; and (3) the association of measles and pemphigus.

Clinical and Scientific Proceedings

AETIOLOGY AND TREATMENT OF DUODENAL ULCERATION

At a meeting of the Fife Branch of the British Medical Association Mr. J. J. ROBB gave an address on "The Aetiology and Treatment of Duodenal Ulceration."

Discussing the historical aspect of treatment of this condition Mr. Robb said we had passed from a position of comparative satisfaction, based on successful cases without due regard to the number of failures, to a more critical attitude, owing to the persistence of failures and lack of definite knowledge as to the cause of ulceration. When he began research into this subject he found that the study of failures gave little help, and that it was only by making an accurate study of the normal that some understanding of the abnormal was ultimately reached. His investigation of gastro-intestinal function was made by *x* rays, fluorescent screen, and barium meals. Radiographs were only useful where they showed an actual abnormality of organic nature.

Although the stomach was an extremely sensitive and powerful organ, responding to the mental state of the patient, to satisfaction and dissatisfaction, by changing its position, rising or falling, it was quite clear that a resting normal did exist. With the patient erect the normal stomach swept downwards from the cardia until the greater curvature just touched a line joining the iliac crests. From there it rose steeply to a fixed position at the pylorus. This was the normal or sthenic stomach, and permanent departures from this position were abnormal, either above—hypersthenic—or below—hyposthenic.

The lecturer then reviewed normal gastro-intestinal function, showing that hypersecretion was exaggerated normal, whereas hyposecretion was abnormal and the result of failing function. The nerve supply to the stomach and intestines, he continued, was by two groups, both autonomic: (1) the intrinsic group consisting of the plexuses of Meissner and Auerbach; and (2) the extrinsic group formed by the vagi, the coeliac, and the presacral plexuses. The intrinsic group controlled all normal bowel function, and, apart from the region of the pyloric sphincter, were motor throughout. The extrinsic group, apart from the vagi, exercised control over intrinsic function, either locally or throughout the whole tract, evidence of this group's activity being shown by dilatation of bowel and hypertonicity of sphincter. The exact function of the vagi was uncertain, but the abdominal sympathetic system and the vagi did not function in sympathy with each other. Stomach function appeared to continue in oblivion to changed function in intestinal areas.

Aetiology

Cases exhibiting the well-known symptoms constituting the duodenal syndrome might or might not show actual ulceration. Nevertheless, clinically and therapeutically they were inseparable, and should be placed in one group with ulcer as an additional sign. Examination of these cases by investigation of bowel function by barium screening showed a definite distortion, although the actual appearance of this distortion might be masked by the mental state of the patient at the time or even by the presence of the barium changing the visceral state. Patience on the part of the investigator and the complete confidence of the patient were required. In the early case departure from the normal showed itself by overactivity and hypertonicity of the stomach indicated by the raising of that organ far above its normal active level. In the more advanced case this overactivated stomach began to tire and dilate; it sagged down, and might ultimately lie low in the pelvis. Maximum irritability and overactivity occurred at from one-half to one and a half hours after ingestion of food, depending on the nature of the food ingested, the power of the stomach musculature, and the degree of hypertonicity in the pyloric sphincter.

The lack of opening response at the pylorus showed that the normal chemico-physical basis for the stomach evacuation reflex had vanished and other reflexes had taken control of the pylorus. This fact was not appreciated by the stomach, which intensified its efforts to evacuate its contents, and with a hypertrophied muscle these efforts were remarkably successful, a forced evacuation of contents taking place through a tense pyloric sphincter at a rate above normal. These contents, ill digested and saturated with an overabundance of free acid, were driven through the central and weakest part of a hypertonic and fixed sphincter and impinged forcibly on one area of duodenum, an area, therefore, which showed, sooner or later, a chronic traumatic inflammation with its sequelae of congestion, fibrosis, central anaemia and degeneration, and the formation of ulcer. Further signs of sympathetic agitation appeared along the bowel—duodenal stasis, delay at duodenal-jejunal flexure and at the ileo-caecal valve. In the early case the colon was spastic, later flaccid, dilated, and dropped.

Abdominal Sympathetic Activation

These departures from the normal functioning of stomach and bowel, showing the origin of a duodenal ulcer, were evidence of a syndrome of sympathetic activation. Sympathetic activity was always protective and sought to obtain immobilization and rest. Therefore the purpose of this sympathetic interference or syndrome was to slow down bowel movement and transport. The stomach only remained oblivious to this demand for rest as it held the key to tissue life and must function to deliver sustenance to the regions of digestion and absorption. This effort on the part of the stomach and counter-effort by the abdominal sympathetic resulted in the maintenance of a fine balance between the danger to life from some lesion and the danger of insufficient nutrition. We had now ceased to regard the ulcer as a primary disease or the stomach as being at fault. The real disease lay in the activated abdominal sympathetic system, and the next step was to find out the cause of this activation.

Bearing in mind, Mr. Robb continued, that the ultimate function of the autonomic system was the preservation of life, we could understand the action of the abdominal sympathetic endeavouring to protect the body against some dangerous lesion. This action may be excited centrally or through peritoneal irritation. Here we regarded the peritoneum and serous linings generally as forming, in addition to other purposes, a third element in the system of defence against disease by awakening the appropriate sympathetic system, thus bringing about attempted tissue immobilization leading to disturbed function.

The causes were classified as primary and secondary: the primary group, where the cause was central or psychological; the secondary group, including all tissue lesions which might affect the peritoneum. It was important that all secondary causes should be excluded before the primary group was considered. This primary group included all psychological disturbances leading to repression or dissatisfaction or psychophysical conflict in relation to environment or employment. The discovery of the cause did not mean cure, as established ways of life could not be changed radically. Nevertheless, a holiday or isolation in a nursing home might effect a complete, if temporary, cure without other treatment.

The secondary group were divided into intra- and extra-abdominal. The commonest intra-abdominal cause was chronic appendicitis. Other causes were tuberculous adenitis, peritoneal and omental bands, and, in the female, chronic inflammatory states in the pelvic organs. Chronic cholecystitis only acted as a cause when the inflammatory process involved the peritoneal covering. Chronic diverticulitis of the colon was probably a cause in one case. Extra-abdominal causes included any lesion producing a chronic toxaemia or bacteriaemia.

Treatment

Treatment might be symptomatic or direct. Symptomatic treatment was easier and was the method which so far had received most attention, but the end-results were not satisfactory. Direct treatment was more difficult for doctor and patient, but the result was definitely better. If this interpretation of the aetiology was correct, Mr. Robb continued, then we had to think of duodenal ulcer as a late symptom in the disease. Therefore, if we could begin treatment early, when there was probably only a little dyspepsia and constipation, a duodenal ulcer would not appear. The logical sequence of treatment would appear to be first to remove the cause of the sympathetic upset within the abdomen, and, secondly, to correct disordered bowel function. As the abdominal sympathetics were in health quiescent but once activated became in time abnormally active, removal of the cause did not always cure, and in late cases especially further measures were required to produce normal quiescence.

In doing this the stomach could be disregarded. The chief difficulty was the pyloric spasm and the spasm of the junctional sphincters, and, secondly, imperfect motor function of the intestines due to sympathetic interference. The sympathetic stimuli must be allayed or cut out either by atropine, over a period of six months to two years, or by bromide. Atropine, owing to the production of symptoms of poisoning and the discomfort caused by eye symptoms, was inferior for this purpose to bromide, which, in small doses—5 grains thrice daily—was found by screen tests to produce the necessary results provided a low chloride diet was taken at the same time. With this small dose there was no risk of bromide poisoning. The next step was gently to encourage the bowel to get back to its natural rhythm. The use of strong purgatives was avoided, as overactivated peristalsis reawakened the sympathetic syndrome in spite of bromide action. The reaction of each individual case had to be carefully studied. Medicine and re-education were both required, and the most effective drug for this purpose was mag. carb. pond., 20 grains thrice daily. Finally, to aid in stabilizing the sympathetic system, the lecturer gave calcium lactate or carbonate in doses of 6 to 8 grains daily. As regards diet, any foods which had a violent forward peristaltic action should be avoided, and, if ulcer is present, nothing should be given that was hard or tough to traumatize and prevent healing. Therefore, red meats or any very highly flavoured dish should be avoided. Hunger should also be avoided, so that feeding should be at frequent intervals.

Scope of Surgical Treatment

The scope of surgery in treatment, briefly, included those cases in which definite hypofunction had been established and in which medical measures, therefore, could not alone bring the stomach back to normal. Its purpose was to make the course of digestion fit in with the abnormal conditions produced by hypofunction. A gastro-jejunostomy provided an efficient drain from the lowest part of the stomach, and was the best procedure. Where stomach muscle failure was early and pyloric function was unimpaired but a large and active duodenal ulcer was present, direct anastomosis of the stomach to the second part of the duodenum seemed most satisfactory. Where stomach and duodenum both showed signs of muscle failure, gastrojejunostomy and duodenojejunostomy were each required.

The only justification for surgical treatment was muscle failure. Success following operative treatment might be deceptive, as shock of operation alone might allay sympathetic activity from two months to two years. Therefore, medical treatment, as already indicated, should always be continued after operation. No therapy could successfully deal with cases of duodenal ulceration unless it took into account the reason why the ulceration was there, and the fineness of the mechanism that regulated all gastro-intestinal movement and function.

Clinical Memoranda

Typing of C. Diphtheriae in Connexion with the Clinical Course of Diphtheria Infection*

During 1934 and 1935 the type of bacillus present in ninety-one patients and ten carriers was investigated. The accompanying table shows the relation of the various types to the severity of the disease. The "gravis" type was not predominantly found in severe cases, whereas the percentage of "mitis" was high.

Period	Clinical Course	Total No. of Cases	Gravis	Intermedius	Mitis	Atypical
1934 and 1935	Lethal	10	1	2	6	1
	Very malignant ..	12	1	7	4	—
	Medium malignancy	26	2	9	15	—
	Mild	43	1	10	30	2
	Carriers	10	1	—	9	—

Budakoff, Golinevitch, Undrevitch, and Jer-Osipora (1936) could not find any constant relation between the severity of infection and the type of strain present, though they did note that the "gravis" type occurred more often in fatal cases of illness.

In the special observation of twenty patients treated with serum we gained the impression that the majority of those who showed no improvement after the administration of antitoxin yielded the "mitis" type. Among the whole of the strains we studied twelve (one "gravis," three "intermediate," and eight "mitis") were avirulent when tested on guinea-pigs according to the Eagleton and Baxter method.

We do not consider our results at variance with those described by Anderson and other authors, for a final conclusion can be reached only after investigation on very large numbers of cases of diphtheria observed during different epidemic phases of diphtheria epidemics. Our work indicated that at a period when little diphtheria occurred, and most of it mild, the "mitis" type of bacillus was most often met with, whereas during a serious epidemic the "gravis" and "intermediate" types became more frequent.

SUMMARY

1. Cultures from ninety-one patients and ten carriers yielded 63 per cent. "mitis," 28 per cent. "intermediate," and 6 per cent. "gravis"; 3 per cent. of the strains were atypical.

2. We could not find any close relation between the severity of the attack and any special type of bacillus.

3. Twelve strains avirulent for guinea-pigs were isolated.

4. In non-epidemic periods the "mitis" type is found most frequently.

S. L. SHAPIRO and M. V. RUKEVITCH,
Moscow Clinical Research Institute
of Infectious Diseases.

REFERENCE

Budakoff, Golinevitch, Undrevitch, and Jer-Osipora (1936). *The Problems of Epidemiology and Immunology* (Russian), **2**, 5.

* An abstract of a paper submitted by the authors.

Spontaneous Pneumothorax Occurring with the Onset of Labour and Resulting in Sudden Death

The following case seems to be of sufficient interest to merit being placed on record.

CASE HISTORY

Mrs. B., aged 30, primipara, was admitted to the Leeds Maternity Hospital on January 15, 1937, for investigation following a severe attack of abdominal pain. The history was one of very good health until a febrile illness in December, 1936, since when she had complained of cough, malaise, loss of weight, and intermittent attacks of left-sided abdominal pain. Her general condition was poor, and there was slight instability of the temperature and pulse. Physical examination, together with a skiagram of the chest, revealed bilateral apical tuberculosis with an extensive effusion at the left base. She was about twenty-four weeks pregnant.

The patient was transferred to Killingbeck Sanatorium on February 17, where she remained until term. From the time of admission she improved rapidly and steadily. The cough soon disappeared, and never at any time did she have sputum. After a month of sanatorium treatment she was allowed out of bed, increasing her time to a maximum of four hours daily. On this latter grade her temperature and pulse kept within normal limits Pregnancy was normal in every way, except that the foetal head remained above the pelvic brim until term. This was attributed to an occipito-posterior position as there was no disproportion. At term it was thought advisable to induce labour, and she was accordingly returned to the Leeds Maternity Hospital on May 4, 1937. On the day of transfer her general condition was very good indeed. Physical examination revealed an impaired note with a few crepitations at each apex, and dullness with diminished air entry at the left base.

A medical induction was given on May 4, and the head became fixed though labour did not commence. The induction was repeated on May 6, and the patient started to have slight pains at 7.30 a.m. on May 7. She was then extremely well. Half an hour later she suddenly collapsed, having marked cyanosis and dyspnoea, and died within two minutes, before medical assistance arrived.

A post-mortem examination was made on the morning of death. The right lung was completely collapsed, and on inflation of the trachea air escaped from a perforation, about a quarter of an inch in diameter, on the surface of the middle lobe. Further examination showed that the perforation was over the site of a small subpleural abscess. Apart from healed tubercles at the apex and some calcified nodules in the middle zone, the remainder of the lung was normal. There was partial collapse of the left lung due to a thick adherent pleura which had obliterated the pleural cavity. Both upper and lower lobes contained healed and active tubercles. Apart from engorgement of the right side of the heart all the other organs were normal. The cervix was taken up but not yet dilated.

SUMMARY

A case is described of a patient who came under observation for pulmonary tuberculosis midway through pregnancy. At term she was very well, with little evidence of active disease.

Half an hour after labour commenced she had a spontaneous pneumothorax on the less affected side, and died within the unusually rapid time of two minutes.

We are much indebted to Dr. W Santon Gilmour, medical superintendent of Killingbeck Sanatorium, Leeds, and to Mr. D. W. Currie, honorary obstetrical surgeon to the Leeds Maternity Hospital, for permission to publish this case, and for their help and advice.

W. HOWIE TOD, M.D., B.Sc.
JOHN F. WARIN, M.D., D.P.H.

Leeds.

Reviews

CHRONIC FLUORINE POISONING

Fluorine Intoxication. A Clinical-Hygienic Study. By Kaj Roholm. (Pp. 364; 96 figures. 20s. net.) Copenhagen: Arnold Busch. London: H. K. Lewis and Co., Ltd. 1937.

In a short review it is impossible to do adequate justice to this important, interesting, and able piece of research. The author is a Danish physician who has been attached to the Factory Inspectorate in Denmark for the purposes of this work. The book opens with a comprehensive review of the part played by fluorine in biology. Intoxication in man, in plants, and in animals, the occurrence of fluorine in animate and inanimate nature, the effects of fluorine upon protoplasm and enzymes, the effects of acute, subacute, and chronic fluorine intoxication, are some of the most important parts of the first section. There follow descriptions of the technique adopted in the author's investigation, of his study of spontaneous cryolite poisoning, and of his own experimental investigations on rats, pigs, calves, and dogs. The book concludes with an able discussion of the whole problem of fluorine intoxication and with a presentation of his own conclusions.

The whole book appears to be so important that every effort should be made to bring it to the notice not only of industrial and general branches of the medical profession, but also of radiologists, public health officers, dentists, veterinary surgeons, and agriculturists. In the present review it is proposed to confine attention to a brief account of Dr. Roholm's conclusions concerning chronic intoxication with fluorine. In passing we may offer a word of praise to the author for his remarkable command of the English language, and to the printers for the excellence both of the type and of the illustrations. The reproductions of the *x* rays are particularly successful.

Chronic fluorine intoxication was first recognized by Flemming, Moller, and Gudjonnson among the workers in a cryolite factory in Copenhagen in the year 1932. Cryolite is sodium aluminium fluoride ($AlF_3.3NaF$), a rare mineral mined only in South Greenland. Its industrial use, which is widespread, depends upon the ease with which it causes a flux when heated. Cryolite is used in the smelting of minerals (especially aluminium) and in the manufacture of enamel and glass. The crude ore is mined in Greenland and shipped only to Copenhagen and Philadelphia. Chronic fluorosis occurs among those who mine, and, especially among those who handle, the ore in its crude state. If the risk of chronic fluoride poisoning were confined to those who handle cryolite and those who are exposed to its fumes, English hygienists would need to take little interest in the subject of chronic fluorosis. But other earth-containing fluorides are used in industry and commerce. The most important of these are fluorspar and fluoride-containing clays. Whenever these natural products are subjected to a high temperature fluorine or fluoride-containing gases are discharged into the air unless special precautions are taken. These substances may prejudicially affect plants, animals, and men. Furthermore, since compounds containing fluorine are used for such purposes as the preservation of food, the killing of insects, and the etching of glass and the cleaning of china ware, there are real grounds for concern lest unrecognized cases of chronic fluorine poisoning may be occurring in this country.

Dr. Roholm mentions the following industries in which exposure to fluorine-containing gases may occur. (It is to be noted that the brunt of the exposure may fall not upon the workers but rather upon those who live near to the factories in which the processes are carried out.) The manufacture of superphosphate makes use of fluorine-containing materials on a large scale. Dr. Roholm raises the question whether the presence of fluorine in superphosphates may not sometimes have a detrimental effect upon the plant life which they are intended to nourish. In the steel and metal-smelting industries fluorspar (CaF_2) is used extensively as a flux; in this case silica tetrafluoride is discharged into the air. Some of the clays used in brick-making contain fluorides, which may be discharged in the kiln smoke. Certain zinc ores contain fluorides, as also do some of the materials used in glass, enamel, and certain chemical industries. It will be realized, therefore, that the potential risk is a real one in this country. If we have in fact escaped from the effects of fluorine poisoning it is probably due to the circumstance that it is, in general, unusual for our industries to be crowded into small and compact districts. It is possible, however, that cases are occurring which have not been diagnosed.

In a search for the evidence of chronic fluorosis the following main points should be given special attention. Dr. Roholm considers (p. 297) that attention may be directed in the first instance to the plant life around the factory. The affected plants are small and show grey or brown spots on their leaves or edges; the leaves fall early and the plants may have deformed fruits. The animal life of the area should then be studied. The symptoms in animals are described with a wealth of detail on pages 38 to 45 and pages 60 to 102. It will be enough to remark here that the symptoms and signs of fluoride poisoning in animals and in man appear to be remarkably similar. In human beings various manifestations of fluoride poisoning may occur. The types of morbid change which are observed depend upon the length of the period of absorption, the age of the patient, and the channel by which absorption takes place.

Dr. Roholm states that chronic fluorine intoxication presents itself in the form of three clinical units: the tooth anomaly, the osteosclerosis, and the osteomalacic condition accompanied by general symptoms. (1) In man the tooth disease is known as "mottled teeth . . . the dental clinical appearance of which appears to be characteristic"—chalky opaque pigmented enamel, and, in more severe degrees, low resistance of enamel and abnormalities of size and shape. The general health is not affected. (2) The osteosclerotic form of the disease is described for the first time in this monograph. Changes which can be studied radiologically are observed in the pelvis and lumbar region and show "uniform density of bone tissue," and especially "calcification in the ligaments"—no destruction of bone occurs and the general health of the patient is little affected. (3) The "osteomalacic" form of fluoride poisoning is similar to fluoride poisoning which has been observed again and again in many countries amongst herbivora. The bones are "reduced in strength," and exostoses, bone atrophy, and defective calcification occur. In typical cases these changes are accompanied by a progressive cachexia.

While it cannot be said that the author's work has finally established the claim of "fluoride poisoning" to be the sole cause of these interesting types of illness, he has presented enough evidence of a very substantial kind to justify further inquiry, and in particular to justify a careful search being made in this country for possible cases of chronic fluoride poisoning.

MENTAL DEFICIENCY

A Text-Book of Mental Deficiency (Amentia). By A. F. Tredgold, M.D., F.R.C.P., F.R.S.E. Sixth edition. (Pp. 556; 34 plates. 25s.). London: Baillière, Tindall and Cox. 1937.

That Dr. Tredgold's textbook should now be in its sixth edition is not to be wondered at. Its virtues, even its idiosyncrasies, have long been known: each successive edition enhances the former and modifies the latter. In its latest revised form it has become more than ever indispensable for all medical officers or practitioners who are concerned with the diagnosis and certification of defectives under the various Acts of Parliament, as well as of great value even to those specialists who undertake the care or supervision of such patients. Each year the literature of the subject grows. From its medical, biological, and sociological aspects alike it is voluminous. So far as is necessary for the purposes of Dr. Tredgold's book, its author has incorporated the main results of published research and authoritative opinion. It is well to note the particular directions in which this has led to a more than minor or general revision. There are extensive alterations in the chapters on causation, psychology, pathology, secondary amentia, and sociology, and considerable additions to those on the nature of mental deficiency, clinical examination (including mental tests), the law and legal procedure, while there is a helpful new section on the chronological development of the human mind.

In the fullness of its content, in logical and orderly arrangement, and in some features of its general outlook, the work has been definitely improved; and though in places it is not without a tendency to dogmatism on matters of some doubt or acute controversy, this is a feature which is not without excuse in a volume among the primary purposes of which is its use as a textbook for students and practitioners. Its main biological heresy can be either approved or discounted by readers of competent knowledge. It is necessary, indeed, to read the chapter on sociology with extreme care. This is not without a tendency to argue from bad or extreme cases, and to accept at their face value some statistical investigations which either were of a too restricted character or the conclusions from which cannot survive the critical scrutiny of the expert. Though the author's suggestions in the realm of eugenics deserve respect and must always be taken into full consideration, some of his generalizations are a little too facile, and are by no means incontrovertible.

DERMATOLOGY IN CHILDHOOD

Skin Diseases in Children. By George M. Mackee, M.D., and Anthony C. Cipollaro, M.D. (Pp. 345; 153 figures. 24s. net.) London: H. Milford, Oxford University Press. 1937.

Not many dermatologists have produced volumes specially devoted to the subject of skin diseases in children, probably because much the same diseases affect the skin at every decade of life. In fact, the older the patient grows the greater variety of skin affections he appears to be liable to, and dermatologists attached to children's hospitals have been known to complain of the monotony of their clinics. The only dermatoses which are really peculiar to infancy and childhood are congenital affections, of which the various kinds of naevi are the most numerous. Until the volume before us, by Dr. Mackee and Dr. Cipollaro, we do not recollect any other English treatise specially devoted to this section of dermatology since Adamson's very useful little book, which appeared about thirty years ago. The authors of this volume do not share the view of dermato-

logy in childhood above expressed. They are inclined to emphasize the distinctions between the dermatoses of childhood and adult life. At all events they have produced an interesting volume illustrated with good photographs of all the commonest and most important affections of the skin, but there is nothing in it which would not be included in any ordinary textbook of skin diseases. In their preface, which surpasses even the majority of American prefaces as a collection of high-minded and conscientious platitudes, the authors lay much stress upon the highly important question of treatment. The therapeutic directions given in the volume are sound, but they remain commonplace. Perhaps the most useful paragraph consists of the directions for making Pusey's calamine emulsion, which forms a very elegant creamy-pink application for treating mild cases of eczematous dermatitis. Under the heading "Dermatophytosis" the authors describe no fewer than eight varieties of eruption which they consider due to some form of fungus. Many dermatologists would refuse to accept them all as such, but nowadays there is a great tendency to consider every eruption affecting the hands and feet as being caused by fungoid infection. The present authors merely follow the prevailing fashion.

ARMY MEDICAL ADMINISTRATION

Organization, Strategy and Tactics of the Army Medical Services in War. By Lieut.-Colonel T. B. Nicholls, M.B., Ch.B., R.A.M.C. With a foreword by Lieut.-General Sir James A. Hartigan, K.C.B., C.M.G., D.S.O., Director-General, Army Medical Services. (Pp. 372. 10s. 6d.) London: Ballière, Tindall and Cox. 1937.

It is nearly twenty years since the great war ended, and most of the medical men who were serving then have reached an age which prevents their again taking an active part in the field should a national emergency arise. We cannot, therefore, rely on their wide experience gained in France, the Dardanelles, and in Mesopotamia being available, by personal service, and the younger generation of doctors, should they be called upon to serve, will have to depend for their knowledge on what they can learn from books, tactical exercises, and such instruction as is offered them. Lieut.-Colonel T. B. Nicholls, R.A.M.C., presents us with a mass of information on almost every aspect of the subject.

Part I deals with general organization and administration, included in which is an appreciation of the medical situation with a description of the method of calculating the number of casualties and the time and transport required to evacuate them from the battlefield. Perusal of these formulae will indicate the magnitude of the accommodation problems which beset the administrative medical officer. Part II, the largest section, describes the constitution and organization of medical units in the field, in each case giving details of siting, construction, capacity, personnel, medical equipment, transport organization, and duties. Strategy and tactics is the heading to Part III. Here the positioning and movement of medical units are discussed with particular reference to varying phases in a campaign and to special topographical situations. The last part is devoted to administrative exercises in which different medical problems are set and in some cases answered.

The book is a complete summary of all the information that it was possible to obtain from war-time records and from the personal experience of the author, who is to be congratulated on the excellent results he has obtained. He has undertaken and completed a task that more than one officer before him, owing to its magnitude, considered but had not the courage to attempt. All books, however good, are open to criticism, and this one is no exception. It is felt that the methods described are not in all cases up to date or sufficiently elastic to meet modern requirements. For example, no mention is made of air transport of wounded, gas and decontamination centres are given scant notice, while arrangements for disinfestation at medical units are entirely omitted, whereas the chapter on ambulance trains is, in our opinion, comparatively and unduly long. We suggest that a chapter on transport of casualties in desert and mountain warfare would have been a useful and instructive addition. As it stands the book deals almost entirely with such medical arrangements as existed in France during the great war and ignores those peculiar to other theatres. There is a dearth of diagrams: for example, the lay-out of a main dressing station, a C.C.S., a gas centre, or the general scheme of evacuation from the firing line to the base. A map, however rough, would have been of greater help in following the tactical movements of the mobile medical units in one of the staff exercises. These are minor points and detract little from the general worth of the publication.

Every R.A.M.C. officer, Regular or Territorial, will find Colonel Nicholls's book an encyclopaedia of knowledge and information concerning the medical services in war, and should be grateful to him for having presented the subject in such a clear and comprehensive manner. At the same time it can never replace the official manuals, and should be looked upon more as an addition to than a substitute for these.

ROSE AND CARLESS

Rose and Carless Manual of Surgery. Edited by Cecil P. G. Wakeley, D.Sc., F.R.C.S., and John B. Hunter, M.C., M.Ch., F.R.C.S. Fifteenth edition. (2 volumes, pp. 1,618; 948 figures, 18 coloured plates. 30s.) London: Baillière, Tindall and Cox. 1937.

The fifteenth edition of "Rose and Carless" appears in two volumes and is dedicated to Lord Lister with the wording used in the original edition of 1898; while above the dedication is a photograph of the bust of Lister which rests in the Royal College of Surgeons of England. In a preface mention is made of the fact that for some unexplained reason the dedication to Lord Lister was omitted from the last two editions. Since the appearance of the last edition (reviewed in these columns on February 10, 1934) the death of Albert Carless has deprived the work of the last of its original authors.

The new edition shows evidence of much revision; new chapters on surgical shock and the sympathetic nervous system have been added, while the breaking up of the text into two volumes is undoubtedly an advantage, as a single volume work in the same style would be unwieldy. The first eight chapters, which deal with surgical pathology and bacteriology and are contributed by Dr. Carnegie Dickson, have been practically rewritten, and much new matter is incorporated. Mr. V. E. Negus has revised the section on oto-rhino-laryngology and Mr. Bishop Harman that on ophthalmology, Sir Frank Connor that on tropical surgery and Mr. Eardley Holland and Dr. C. Hadfield those on the surgery of the female genital organs and on anaesthesia respectively. Mr. John Hunter has rewritten and enlarged the chapter on thoracic surgery. Illustrations are many and good, but the semi-diagrammatic figure 651 might be modified to accord with modern embryological views and the thyroglossal tract shown passing ventral to the hyoid bone. In the interests of space, Fig. 533, showing the trans-sphenoidal exposure of pituitary tumours, might disappear from future editions, as being only of historical interest to-day.

We regret the absence of any reference to the Billroth I type of operation for gastric resection, for this physiological type of procedure has so much to recommend it and is being more widely practised to-day.

This edition of a well-known textbook shows considerable improvement over its predecessors, and in our opinion is the best that has appeared since the last edition by the original authors. We have no hesitation in continuing to recommend this work to students and practitioners.

Notes on Books

Sir THOMAS LEWIS'S masterly survey entitled *Diseases of the Heart* was noticed soon after its appearance in a leading article in these columns on May 6, 1933. We now welcome a second edition (Macmillan and Co., 12s. 6d.). For this the text has been thoroughly revised by the author, and all recent and relevant advances in our knowledge of affections of the heart which it is judged will prove of value to the practitioner have been incorporated.

Disorders of the Blood, by Dr. LIONEL E. H. WHITBY and Dr. C. J. C. BRITTON, was reviewed in these columns on its first appearance in 1935, and the authors were praised for their judgement and skill in compressing a vast subject into small space without deforming it. A second edition has now appeared (J. and A. Churchill, 21s.). During the past two years several notable advances have been made in the science of haematology, and these are reflected in the thirty-five extra pages and seven new illustrations, as well as in some 400 changes in the bibliographies. This edition stresses the value of grouping the anaemias in terms of cell size and haemoglobin concentration, a classification which the authors prefer to one based on the colour index.

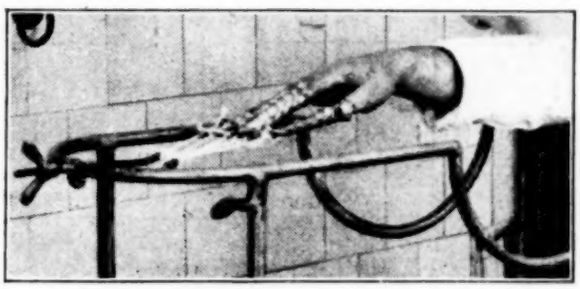
In the latter part of 1934 we drew attention to the work of KARL DIEHL and O. F. V. VERSCHUER, who, by studying the tuberculous changes in uniovular and binovular twins, were able to demonstrate that a "specific" hereditary predisposition plays a part in the development of tuberculosis. The same authors have now published a second volume, *Der Erbeinfluss bei der Tuberkulose* (Jena, Gustav Fischer), giving the results of their investigations in greater detail. Moreover, the work now covers 239 pairs of twins (previously they totalled only 127), in 205 of whom tuberculous lesions could be discovered in at least one of the twins; and in addition it has been possible to follow up the original twins for a longer period. The authors maintain that this more extensive investigation confirms in all respects the conclusions in their first monograph.

Dr. JACQUES AUDIAT'S monograph *L'Action des Rayons Ultra-Violet et des Rayons X sur les Nerfs Périphériques* (Masson et Cie, 25 fr.) is a contribution to a subject on which, up to the present, very little research has been done. Although much work has been accomplished in investigating the effects of chemical agents on the function of nerves, study of the influence of physical agents has been limited. The opinion generally held is that *x* rays have little, if any, effect on the function of nerve tissue. As for ultra-violet rays, their penetration is known to be feeble, and that they could affect the peripheral nerves has been thought improbable. By a number of delicately controlled experiments on the isolated sciatic nerves of frogs Dr. Audiat demonstrates that under given conditions (among which variations in temperature are a modifying factor) ultra-violet rays and *x* rays diminish the excitability of the nerve until it is totally suspended. The author contends that the reactions set up in the nerve by irradiation continue after it has ceased, and he has been able to detect chemical alterations in the nerve tissue by spectrum analysis. The effects of ultra-violet and *x*-ray irradiation on the physiological activity of isolated nerve were identical in most respects. The book is an interesting account of meticulously performed experiments which in their present stage are of greater interest to the laboratory worker than the clinician.

Preparations and Appliances

EXTENSION IN CARPAL EXCISIONS

Mr. T. B. MOUAT (Hon. Surgeon, Royal Infirmary, Sheffield) writes: It is now recognized that some form of traction extension is essential in the reduction of a dislocated carpal bone, but it is not so generally appreciated that extension in a Böhler's forearm screw traction frame is equally helpful in operations for excision of a disintegrated carpal semilunar or scaphoid. After the frame has been placed in position, and either local or general anaesthesia induced, extension is applied to the fingers by large plaited cane finger-stalls, which are supplied by Messrs. Down Bros. The fixed extension opens



up the carpal joints, and converts a difficult operation into a comparatively easy one. Before the use of extension I found it was very difficult indeed to remove in one piece a lunate bone softened and deformed by Kienböck's disease, because the bone broke up and peripheral fragments adherent to the ligaments had to be tediously dissected out or removed with a curved dental elevator. With extension it becomes easy to recognize the interspaces and cleanly to excise the diseased bone after division of its ligamentous attachments. There is less discomfort after operation because trauma is reduced to a minimum and the functional result is improved.

WESTERN ELECTRIC 6A AUDIOMETER

The Western Electric Company have recently produced a new instrument known as the 6A audiometer, which seems to be a distinct improvement upon their former models. It is a heterodyne instrument, and has a continuous variable frequency enabling testing to take place at any frequency within a range of about 100 to 10,000 cycles per second—it is practically a pure tone instrument. Bone conduction may be tested both with and without masking. The masking method, which is an improvement, consists of applying the masking tone by air to the ear not being tested. This masking tone is of the same frequency as the tone applied to the ear under test and diminishes in intensity with that of the testing tone. This enables each ear to be tested accurately by bone conduction. Incorporated in the instrument is a microphone, which enables the operator to talk to the patient under test. This acts as a hearing aid, but it is unlikely that it would be necessary to make use of it on many occasions; it is not calibrated and obviously would not be suitable for all types of deafness. The additional cost for the microphone is about £10, and it is doubtful whether this is worth while. The instrument may be obtained without the microphone. While it is possible to obtain a more accurate record of the patient's hearing loss with this instrument, rather more intelligence is required on the part of the patient than is necessary in using the 2B audiometer. The cost of the instrument is 70 guineas, with extras, apart from the microphone, amounting to about another £10.

REGIONAL DISTRIBUTION OF CANCER IN THE OXFORD AREA

BY

G. B. LEYTON, B.A.,

AND

H. G. LEYTON, M.D.

In the course of an analysis of cancer patients who had attended the Ratcliffe Infirmary, Oxford, during the past six years it became obvious that certain streets in the city and some villages in the country around were sending more cases than others. With the view of checking these findings tables of the total deaths were compiled from the registrar's returns covering the whole area, and we are indebted to the medical officers of health for the city and the adjoining districts for permission to use the returns.

General Features

In order to get a true picture of the distribution of deaths it was necessary to place cases in adjoining streets and villages in their relative geographical order, since the division of cases into registration districts breaks the continuity of the grouping. Villages have been classed as adjacent to one of the towns if within three miles. Points brought out by this rearrangement are:

1. That streets in Oxford adjoining one another get exacerbations in the number of their cancer cases at the same period, and if the cases are marked on a map of the city they show definite grouping.

2. That villages in certain parts of the country around show a similar tendency.

3. That during these exacerbations one or two younger cases often occur.

OXFORD CITY

	1932	Age	1933	Age	1934	Age	1935	Age	1936	Age
DISTRICT I										
Street 1.. ..	C. lung	58	C. stomach	57	C. cervix	47	C. prostate	84	C. prostate	64
									C. stomach	64
„ 2.. ..	C. colon	71			C. rectum	73	C. colon	78	C. pancreas	78
„ 3.. ..	C. uterus	58					„ „	53	„ „	60
„ 4.. ..									C. breast	54
„ 5.. ..	Sarc. uterus	48					C. cervix	74	„ „	77
„ 6.. ..	C. liver	75					C. colon	53		
„ 7.. ..	Sarc. arm	62	C. colon	67	C. lung	68	C. rectum	34	„ „	52
DISTRICT II										
Street 1.. ..	C. bronchus	69	C. stomach	61	C. colon	37	Melanotic sarc.	87	C. colon	78
„ 2.. ..	Cerebral tumour	21			C. larynx	61	C. stomach	75	Rodent ulcer	76
„ 3.. ..					C. colon	75	C. glands	70		
					C. testis	53	C. breast	46		
„ 4.. ..					C. colon	65				
					C. breast	74				
DISTRICT III										
Street 1.. ..			C. colon	34						
„ 2.. ..			C. jaw	58	C. stomach	66			C. stomach	60
„ 3.. ..			C. larynx	58						
„ 4.. ..			C. uterus	60	C. breast	53			C. breast	50
„ 5.. ..			C. liver	73	C. bladder	77			C. larynx	56
„ 6.. ..			C. jaw	71						
„ 7.. ..			C. oesoph.	72						
„ 8.. ..			C. bladder	72						
„ 9.. ..	C. breast	45	C. colon	78						
„ 10.. ..	„ „	59			C. stomach	54				
„ 11.. ..	C. palate	53			C. bladder	58				
„ 12.. ..					C. oesoph.	87			C. colon	65
„ 13.. ..					„ „	64				
					C. stomach	54				
					C. colon	64				
„ 14.. ..					C. oesoph.	65				
DISTRICT IV										
Street 1.. ..	C. rectum	82	C. uterus	63	Sarcoma	7			C. breast	78
			C. rectum	65	C. stomach	59			C. colon	81
			C. stomach	65						
„ 2.. ..			C. colon	87			C. rectum	59	C. oesoph.	86
			C. breast	58						
DISTRICT V										
Street 1.. ..	C. liver	74	C. breast	54			Hypernephroma	64	C. stomach	63
									C. pelvis	72
„ 2.. ..	C. breast	45			C. stomach	64	C. pancreas	61	Cerebral tumour	42
									C. prostate	67
„ 3.. ..	Carcinomatosis	63			„ „	73	C. rectum	61	Hypernephroma	43
„ 4.. ..	Epith. fauces	65							C. rectum	82
„ 5.. ..			C. colon	77	C. oesoph.	77			C. colon	83
					C. uterus	65	C. ovary	67	„ „	77
„ 6.. ..					Cerebral tumour	9	C. colon	64		
„ 7.. ..	C. colon	69			„ „	57				
„ 8.. ..			C. stomach	66						
„ 9.. ..			„ „	65						
DISTRICT VI										
Street 1.. ..			C. colon	67	C. oesoph.	67	C. uterus	48		
							„ „	47		
„ 2.. ..			C. breast	54	„ „	65	C. colon	83	C. stomach	57
„ 3.. ..							C. duodenum	60		
„ 4.. ..			C. tongue	53						
			C. colon	80						
			C. liver	64	C. bladder	76				
			C. stomach	67						
„ 5.. ..			C. bronchus	54	C. stomach	65				
„ 6.. ..			C. stomach	73	C. rectum	54				
„ 7.. ..			C. lung	44						
„ 8.. ..										

4. That two or more cases of cancer of the same organ tend to occur at the same time. For instance, in one village there were two cases of cancer of the stomach, two of cancer of the tongue, and two of cancer of the prostate at the same time; and in the market towns this feature is even more pronounced than in the village groups. Cancer of the stomach appears to be very prevalent in these smaller towns, and the cases entered in the death certificates as cancer of the liver may probably be added to these, as primary disease of that organ in cancer is not common.

It is realized of course that in any of the periodic groups shown cases occur which have no relation to any exacerbation; but, judging from the hospital notes, cases of cancer of the alimentary tract in this area most often appear in the death returns within three years, so that the incidence in these cases can be roughly estimated to have taken place three years previously.

While the occurrence of an excessive number of deaths from cancer in any one area is within the realms of chance, it seems necessary to find some other explanation for the widespread nature of this phenomenon over a large district. There are villages not included in these tables where there have not been any cases of cancer, and this is more noticeable in one particular part of a county area. It would be interesting to know whether the above grouping takes place in other parts of the country.

MARKET TOWN I (Population 3,246)

	1931	Age	1932	Age	1933	Age	1934	Age	1935	Age	1936	Age
	C. glands of neck	41	C. liver	63	C. caecum	72	C. antrum	64	C. breast	67	C. vulva	75
	C. stomach	51	C. breast	69	C. bladder	69	C. tongue	72	C. oesoph.	71	C. breast	66
	" "	75			C. prostate	69	C. stomach	61	C. stomach	65	" "	37
	C. liver	46			C. uterus	70	" "	79	C. liver	63	C. stomach	78
	C. gall-bladder	76			Sarcoma	86		77	" "	75	" "	62
	" "	60					C. rectum	60	C. colon	70	" "	76
	C. colon	65					" "	65	" "	80	C. colon	67
	" "	67					C. prostate	75	C. rectum	71	C. rectum	67
	Hypernephroma	66										
	C. thyroid	64										
	C. breast	61										
	C. uterus	64										
	C. ovary	39										
	Sarcoma	39										
Villages adjacent (within 3 miles)												
1. (Pop. included in Town)	C. stomach	60										
	Cerebral tumour	51										
2. (Pop. 488) ..	C. ovary	43			C. stomach	69	C. stomach	70				
3. (Pop. 646) ..	C. breast	63			C. colon	65	C. oesoph.	67			C. colon	78
	C. tonsil	85					C. cervix	65			C. pancreas	29
							C. breast	77				
4. (Pop. 419) ..	C. rectum	72	C. larynx	26			C. rectum	70				
5. (Pop. 227) ..	" "	56					C. mediastinum	69				
Villages in same Registration Area over 3 miles from the Town but adjacent in order												
1. (Pop. 246) ..					C. stomach	58						
					C. glands of neck	75						
2. (Pop. 256) ..	C. prostate	69					C. stomach	75				
	C. breast	77					C. rectum	66				
3. (Pop. 402) ..			Epith. mouth	46			C. stomach	75	C. lung	58	C. liver	54
							" "	58			C. rectum	51
							C. rectum	66				
4. (Pop. 622) ..	C. lung	47	C. stomach	66	C. tongue	64	C. prostate	67			Cerebral tumour	68
	C. oesoph.	54	C. tongue	69	C. prostate	88	C. stomach	87				
5. (Pop. 197) ..			C. colon	71	C. colon	76	Cerebral tumour	45	Epith. lip	76		
6. (Pop. 231) ..			C. larynx	57	C. tongue	65	Epith. hand	87				
					Sarc. knee	64						
7. (Pop. 1,179) ..	C. rectum	71	C. colon	73	C. stomach	78	Cerebral tumour	45	C. breast	50		
			C. liver	71	C. rectum	55	C. pancreas	62	C. tongue	70		
8. (Pop. 366) ..					" "	69	C. rectum	79				
9. (Pop. 303) ..			" "	71			Sarc. kidney	2				
			C. sigmoid	36								

MARKET TOWN II (Population 7,995)

1931	Age	1932	Age	1933	Age	1934	Age	1935	Age	1936	Age
C. oesoph.	60	C. oesoph.	60	C. stomach	54	C. stomach	75	C. stomach	76	C. stomach	69
" "	56	C. stomach	75	C. pancreas	75	" "	72	" "	53	C. pylorus	68
" "	55	" "	58	C. colon	65	" "	52	C. liver	70	" "	83
C. stomach	74	C. gall-bladder	58	C. tongue	82	C. pancreas	86	" "	78	C. oesoph.	65
" "	65	C. pancreas	91	C. throat	58	" "	82	" "	75	C. cloon	71
" "	57	C. colon	59	C. larynx	56	C. colon	69	" "	68	C. rectum	75
" "	67	" "	70	C. glands of neck	75	C. bladder	53	C. colon	62	C. sigmoid	28
C. liver	59	C. rectum	55			C. cervix uteri	62	" "	59	C. thorax	65
" "	71	" "	76			" " "	59	" "	65	C. kidney	76
C. colon	71	C. eye	55			C. uterus	66	" "	68	C. breast	45
" "	70	C. breast	77			" "	51	C. caecum	61	" "	80
C. rectum	77					C. prostate	67	C. lung	48	C. prostate	61
" "	73					C. breast	58	Epith.tongue	81	Sarc. ilium	26
C. pancreas	71							C. prostate	61		
C. mouth	64							Sarcoma	67		
Carcinomatosis	70										
C. lip	57										
C. uterus	55										
C. prostate	79										
C. rectum	44										

MARKET TOWN II—*continued*

Villages (in same area but not within 3 miles of the Town)

	1931	Age	1932	Age	1933	Age	1934	Age	1935	Age	1936	Age
WEST												
1. (Pop. 685)	C. breast	84	C. breast	42	C. pylorus	74	C. kidney	41	C. colon	54		
					C. cervix	46						
2. (Pop. 113)	C. colon				C. pylorus	51	C. rectum	62				
3. (Pop. 114)							C. breast	49	Lymphosarcoma	50		
4. (Pop. 506)			C. breast	83	C. colon	68						
			,, ,,	49	C. stomach	70						
			Sarc. lung	40								
			C. stomach	70								
SOUTH												
5. (Pop. 856)	C. tongue	67	Hyperne-phroma	59	C. rectum	61	C. lung	62	C. stomach	64	C. sigmoid	61
	C. colon	66			Epith. lip	62	C. breast	80	C. sigmoid	59		
					C. ovary	48	C. stomach	73	Chorion epi-thelioma	47		
					C. breast	60	C. prostate	75				
					C. uterus	72	C. rectum	66				
6. (Pop. 846)					C. oesoph.	73	C. stomach	72	C. uterus	82	C. colon	67
							C. cervix	60				
7. (Pop. 727)			C. oesoph.	52	C. stomach	62	C. max. antrum	73	C. liver	77	,, ,,	79
							C. bronchus	44	C. stomach	61		
8. A new village (pop. unknown)							C. rectum	72	C. glands of neck	51	,, ,,	71
							Rodent ulcer	77	C. rectum	66		

MARKET TOWN III (Population 2,164)

	1931	Age	1932	Age	1933	Age	1934	Age	1935	Age	1936	Age
	C. gall-bladder	66			C. stomach	53	C. stomach	28	C. stomach	63	C. oesoph.	76
	C. uterus	55					,, ,,	32	C. oesoph.	77	C. colon	75
							,, ,,	42	C. antrum	57	C. cervix	70
							,, ,,	63			C. lung	53
							C. pancreas	52				
							C. colon	69				
							C. rectum	68				
							,, ,,	65				
							,, ,,	76				
							Sarc. lung	27				
							Lymphosarcoma	14				

Villages (in same area but more than 3 miles distant, ex. S.1)

NORTH												
1. (Pop. 833) ..			C. ovary	55			C. rectum	72				
2. (Pop. 522) ..	C. oesoph.	62	,, ,,	48	C. stomach	68	C. liver	69			C. ovary	43
					C. colon	67					C. breast	79
					C. vulva	70						
					Sarc. femur	72						
WEST												
1. (Pop. 824) ..	C. gall-bladder	78	C. glands of neck	55	C. rectum	84					C. stomach	67
	C. colon	54			C. stomach	82						
SOUTH												
1. (Pop. 209) ..	C. larynx	62			C. oesoph.	67						
2. (Pop. 2070) ..	C. stomach	70	C. rectum	60	C. liver	58	,, ,,	52	Cerebral tumour	56	Sarc. rib	21
			C. uvula	71	C. tonsil	66	C. cervix	31	Cerebral tumour	14		
			C. breast	71			C. breast	48				
EAST												
1. (Pop. 275) ..	C. breast	80	C. pancreas	80	C. colon	63			C. mediastinum	70	C. rectum	71
	C. pancreas	75	C. larynx	76								
2. (Pop. 206) ..											C. colon	81

MARKET TOWN IV (Population 2,840)

	1931	Age	1932	Age	1933	Age	1934	Age	1935	Age	1936	Age
	C. rectum	56	C. lung	52	C. rectum	59	C. rectum	59	C. oesoph.	78	C. prostate	66
	Sarc. testis	67	C. liver	55	Epith. lip	69	,, ,,	73	C. stomach	52	C. colon	87
			Epith. mouth	61	Myelocytic leukaemia	31	C. colon	55	,, ,,	70		
							C. stomach	69	,, ,,	65		
							C. tongue	62	C. pancreas	67		
							C. uterus	69	Hypernephroma	46		
									C. larynx	65		
									C. prostate	56		
									C. pituitary	72		

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY AUGUST 21 1937

BLACKWATER FEVER

Few problems in tropical medicine are more puzzling, and one may well say more urgent, than that of the causation of blackwater fever, the disease more than any other feared by the European in many parts of the Tropics. Uncomplicated malaria may itself be fatal, dysentery may be a serious cause of sickness and invalidism, typhoid is always a possible contingency, but none of these, and indeed scarcely any other disease that comes to mind, except cholera in the old days in India, has that fatal and dramatic suddenness and fear-inspiring character that blackwater fever has always had to those living in countries where this disease is at all prevalent. The causes of blackwater fever still remain almost as mysterious now as they were thirty years or more ago, when Manson described it in his famous textbook. Long before this, however, the French in West Africa had written largely about the disease. Other nations followed as medical science in their colonies advanced. Koch startled the world by his pronouncement that blackwater fever was the result of quinine poisoning.

Controversy, hypothesis, and a minimum of actual facts or proof have always characterized the writings on this subject, and probably all the advance that has been made now for many years as to knowledge of its essential nature can be summed up by saying that opinion has now become almost unanimous that it is definitely a sequela of long-continued malaria. One might perhaps go further and say that it is also generally recognized to be the result of some change induced in the subject by repeated malaria by which he has been brought very much into the position of the paroxysmal haemoglobinuric—that is, liable to a crisis of intravascular haemolysis when certain exciting causes are brought to bear. But in this case it is clearly not cold that precipitates the attack, and though probably here quinine plays the part of the most usual exciting cause, yet absolute proof or disproof of this is still lacking. We do know that quinine acts in this way in certain quinine-susceptible cases. For this the evidence is overwhelming, but whether the drug is also responsible for precipitating the attack in the usual type of case it is extraordinarily difficult to say, or at least to prove. As to the nature of the changes which bring about the susceptibility, even conjecture fails to give any reasonably helpful theory. Recently some new discoveries regarding changes in the blood in blackwater fever have tended to refocus interest on the vexed question of its causation, and a somewhat remarkable work by Professor J. W. W. Stephens has come at a time perhaps when it is likely to be most needed and useful. This work is a monograph on blackwater fever, and according to the subtitle is "A Historical Survey and Summary of Observations over a Century."[1] Collected in this substantial volume are given "in the original" the numerous facts that during this time have been recorded and the conjectures put forward about this disease. We say, in the original, because this is literally true, the author's method being the unusual one of quoting the cited author's own words so far as possible in appropriate passages. This is supplemented in many cases by a tabular condensation of the cited authors' data bearing on the question under discussion. Consequently, until one has realized what the method is and experienced some of its advantages, perusal of the book is a little alarming. Once, however, the system is grasped the reader will find with great ease, for example, under "urine" every relevant observation made in the literature. As the pages are turned over he can follow, if he wishes, at a glance the evolution of knowledge regarding each feature described. History, geographical distribution, the findings regarding aetiology, relation to malaria and quinine, the blood, the urine, the symptomatology (there are far more symptoms described than one might have thought), treatment, and so on are given seriatim and followed by a number of appendices giving additional details.

The question of the part played by quinine has deeply concerned Professor Stephens. Clearly it is an extremely important matter to know whether or not administration of this drug forms an essential or even a usual precipitating cause. It seemed possible, if records of the disease could be traced to the days before quinine was in use and any relation could be observed between the introduction of quinine treatment and the record of blackwater fever cases, that the issue might be thus decided. Hence there is not only much of interest in the information given by the author regarding the introduction and use of quinine, but also a critical line of research has been followed. Another point is the question of how far back in the literature can undoubted cases of blackwater fever be recognized. Certain references to "black urine" and the cases described with "black urine" by Hippocrates

[1] *Blackwater Fever.* By J. W. W. Stephens, M.D., F.R.S. Liverpool: University Press. London: Hodder and Stoughton. (15s.)

have been taken as indicating records of the disease. But the actual words of Hippocrates and other writers given in the book show how slender is the evidence in this respect. Recently the researches, more especially of Fairley and Bromfield, have added greatly to our knowledge of the biochemistry of blackwater fever. Foy's researches in Greece indicate that country as a field where perhaps the conditions for studying the disease are far more favourable than they have ever been for the investigator in the Tropics.

Blackwater fever, especially in tropical Africa, though its incidence may have diminished in some classes, still remains a most serious bar to colonization by the settler, not only for those of the white race but for Indians, Chinese, "Syrians," and other immigrant races who suffer equally or to an even greater extent. The seriousness of blackwater fever as a colonial problem will, in fact, be no doubt universally granted. Professor Stephens's book should at this stage be both a stimulus to renewed and a guide to past research. In the frontispiece has been reproduced a fine photograph of the great pioneer author in this field, Médecin Général Bérengar Féraud. There is a foreword by Sir Rickard Christophers, whose name is familiar in association with that of the author in many joint contributions on malaria. At the end of the volume is a very complete bibliography.

THE SOCIAL SERVICES

Sir William Beveridge in his recent farewell address as director of the London School of Economics made a plea for the more scientific study of social subjects, and for a recognition of the true place and status of sociology among the sciences. He emphasized that the prime needs were the more extensive observation of facts as the basis of theories rather than argument from philosophic positions, and a real detachment from partisan action rather than judgement on controversial issues. P.E.P. (Political and Economic Planning) is an organization of the greatest value in the desired direction. Its periodical pamphlets are almost invariably adequate, accurate, clear, and unbiased. On the same date as that of Sir William Beveridge's address it published a *Report on the British Social Services*,[1] characterized by all these qualities and containing proposals for the future organization, control, and development of those services. The report gives a general view of the scope and administration of contemporary public social services, demonstrates their growth and magnitude, shows how they relate to one another, and reviews their main underlying principles. Unfortunately in some respects the health services, though properly considered in their relation to the whole, are somewhat less fully dealt with than the rest; but this feature of the report is to be remedied in the early future by the publication of a special report on those services, of the same order of size as the present report, dealing with many relevant matters which have been omitted or summarily treated at the moment. This will be awaited with great interest.

The public social services in this country have developed piecemeal and in somewhat haphazard fashion. There is consequently much confusion and overlapping. Nevertheless two important trends may be noted as having characterized this development: first, the evolution of publicly administered and financed services out of purely voluntary services; and, second, the preference for a number of specific services based on common needs rather than for a comprehensive relief service based on destitution. Further, four motives, distinguishable but changing in relative importance from time to time, are to be found operative in the growth of these services: the charitable motive to mitigate distress; the social motive to establish minimum standards of health education and well-being in the common interest; the democratic motive to reduce inequalities as far as may be; the self-help motive to encourage thrift and foresight. It must be assumed that these several trends and motives will continue to operate, and that any plans for the reorganization and extension of the services must take account of them. In such outlook and planning impersonal environmental services may be left out of consideration, but all those public services which have as their object the enhancement of the personal welfare of individual citizens may well be brought under review with the aim of co-ordinating or unifying them, of remedying their present imperfections, and of filling up any gaps that are left in their operation. Such is the general purpose of the P.E.P. report.

These services may be classified in various ways. In this report they are divided into the constructive community services, the social insurance services, and the social assistance services. The first of these classes includes the education services, the public medical services, the mental health services, the employment services, and the welfare of the blind. The second includes national health insurance, unemployment insurance, contributory pensions, and workmen's compensation. The third includes public assistance, unemployment assistance, and non-contributory old age pensions. Even this enumeration, by itself, discloses inconsistencies of principle and of practice, the bringing

[1] P.E.P., 16, Queen Anne's Gate, S.W.7. (Price 10s. 6d. cloth-bound, 7s. 6d. paper-bound covers; postage 6d. extra.)

together of matters that might well be separated, and the division of services which might well be brought together or amalgamated. While it may be a very convenient classification for the purposes of description, for the purpose of increased efficiency and improved administration it is clearly very imperfect. There are, for example, health and medical services in each of the three divisions, there are services directly connected with unemployment in at least two of them, and the machinery of pensions and of old-age provision is likewise sectionalized. Clearly the need for some degree of unification is already demonstrated, and certain fundamental questions of broad principle are at once raised. To name only two of these, we may well ask: To which of all these provisions is the contributory method best applied? To what extent is it possible and desirable to make the family rather than the individual the unit of consideration?

It is impossible to answer these and other similar questions decisively at the present moment, but, unless confusion is to be worse confounded and uneconomic working to be perpetuated, they require an early, considered, and impartial determination. The P.E.P. report, on the whole, regards the contributory method as valuable and states that it is popular, though it suggests that a flat rate of contribution is not the fairest and should be reconsidered. It looks, too, with greater favour than is common upon some expedient in the nature of family allowances. The repercussions of the social services upon political, economic, and industrial affairs are recognized. There can, indeed, be no attempt to isolate these matters. They should, however, be governed by conscious purpose rather than by unconscious tendency, and there should emerge "a broad strategy of social service development which can take the place of piecemeal improvisations." To this end the report suggests the establishment of "a Social Services Statutory Committee along the lines of the Unemployment Insurance Statutory Committee," with wide and defined functions. This is a valuable suggestion provided that the public social services are first classified on sound lines. Following the lines of policy and thought laid down by the British Medical Association in its consideration of the medical and health services, it would seem most desirable to preserve the large Departments of Education (including the provision of milk and meals while the children are actually assembled in the school), and of Health (unifying all the medical services under the purview of one central department and of a single authority in each local region), and to separate from these all services in the nature of cash payments and material assistance which could be united in one department to which the suggested statutory committee would stand in appropriate relation.

In connexion with any proposals for reorganization, it is important to note two conclusions of the report in relation to the national health insurance service. They are: first, "The administration of the scheme by approved societies is unnecessarily complicated and probably uneconomic. There should be a careful re-examination of the advantages and disadvantages of the present arrangements, and of the case for either eliminating the approved societies or reorganizing them on a regional basis"; and, second, "The local insurance committees perform no functions which could not be more appropriately performed by the local public health authorities, which are usually responsible for all other public medical services in their areas."

RISKS OF EXPLOSION IN ANAESTHESIA

It is unfortunate that many of the anaesthetic agents in use at the present time are inflammable and are therefore liable to explode under certain conditions. While anaesthetic explosions in this country are relatively infrequent they are very alarming for everybody concerned when they do occur. Coste and Chaplin[1] of the London County Council recently carried out some investigations to discover what conditions render these vapours explosive. They found that a mixture of ethyl chloride and air is inflammable when the proportion of ethyl chloride in the mixture lies between 5 and 20 per cent., and in the case of ether vapour and air a concentration of 2 to 8 per cent. can be ignited. If ether vapour is mixed with nitrous oxide the risk of explosion is doubled, as any concentration of ether between 1.5 and 16 per cent. is inflammable; much the same is true of oxygen and ether. It was also found that the vapour produced by bubbling oxygen, with or without nitrous oxide, through ether in a Boyle's machine or Shipway's apparatus produced a very inflammable mixture; even if the gases were passed through the chloroform bottle as well it was still possible to explode the mixed vapours. On the other hand, the risks of explosion in the course of open ether anaesthesia were found to be very slight. Samples of air taken at a distance of two inches from the patient's mouth contained too small a percentage of ether to ignite, even after the anaesthetic had been in progress for one hour and ten ounces of ether had been used. Both ethylene and acetylene have proved explosive when mixed with oxygen for the purposes of anaesthesia, and cyclopropane, too, is a potential source of danger. This is, of course, only one side of the problem. Of even more importance to the anaesthetist is the source of the spark which may explode the anaesthetic mixture. A red-hot cautery or a diathermy electrode is an obvious danger, especially when used in or near the mouth. Less obvious are the risks attached to the use of electric light bulbs on oesophagoscopes or bronchoscopes. If these bulbs are loose or if the in-

[1] *Brit. J. Anaesth.*, 1937, **14**, 115.

sulation is faulty a spark may arise, and at least two explosions appear to have been caused in this way. A hot dental needle has also been responsible for an explosion, though the temperature of the metal was below that required to produce red heat. Lastly, there are the sparks produced by static electricity. An anaesthetic explosion due to a discharge of static electricity formed the subject of a paper read by Dr. R. Ironside before the Section of Anaesthetics of the Royal Society of Medicine in March, 1935,[2] and some eighteen months ago the Minister of Health issued a memorandum[3] on the possibility of explosions in operating theatres, with particular reference to static electrical charging, which was considered at length in these columns.[4] In America several writers had already drawn attention to the possibility of the frictional electrification of equipment used in operating theatres.[5] Considerable static voltages were produced there, and regarded as creating a serious risk of anaesthetic explosion, merely by the movement of blankets over metal operating tables.[6] In this country the Medical Research Council, prompted by an Anaesthetics Committee set up jointly with the Royal Society of Medicine, in December, 1935, requested, through the medium of the Department of Scientific and Industrial Research, the assistance of the National Physical Laboratory in investigating the whole question of static electrification as it affected operating theatres.[7] A full account of the completed work is to be given by Dr. E. H. Rayner early in 1938, but meanwhile it is possible to adopt at least two methods for minimizing the risks involved. The rubber wheels of trolleys, etc., often provide insulation sufficient to allow dangerous charges to accumulate. As has been pointed out before, one method of preventing this accumulation is by earthing the metallic parts of the equipment by a light chain trailing on the theatre floor, which, though highly resistant, has usually sufficient conductivity to dissipate any static electrification which the equipment may acquire. Another method which promises to be most valuable, we are informed by the National Physical Laboratory, is the use of electrically conducting rubber for tyres, tubing, breathing bags, etc. Samples of rubber equipment of satisfactory conductivity have been made, and the application of such conducting rubber to anaesthetic and surgical equipment should go far to eliminate the dangers of anaesthetic explosions due to static electrification.

THE MODE OF ACTION OF RADIATIONS ON CELLS

The radiotherapy of malignant disease has made remarkable progress on a mainly empirical basis, but it is becoming increasingly evident that the solution of certain important questions—for example, the selective effect of different wave-length radiations, the optimum dosage rate, the time interval between successive doses, and the duration of a course of treatment—depends upon accurate knowledge of the events which intervene between the irradiation of the cell and the biological result. Such fundamental knowledge is the object of intensive research in several centres both in this country and abroad, and a recent report by Dr. C. M. Scott[1] gives a coherent account of the nature of the biological action of x and γ rays, and suggests the ways in which further progress will be most profitably achieved. Dr. Scott points out that most of the disagreement between different investigators has been due to the absence of a quantitative outlook. The physical measurement of a dose of radiation is difficult, so that physical inaccuracies, combined with the inevitable inaccuracies of biological measurements, account for many disputes over matters of fact. In his own work Dr. Scott has used two types of tissue—the isolated frog's heart and the eggs of *Calliphora erythrocephala*—and by adequate controls and accurate measurements he has been able to show that the primary action of x and γ rays is entirely independent of the metabolic processes of the living cell. Thus the process by which x and γ rays injure living cells is unrelated to the respiratory system of the cell, to its glycolytic function, to its enzyme systems, to its nitrogen metabolism, to the viscosity of its protoplasm, or to its hydrogen-ion concentration. It therefore appears that the action of radiation is primarily exerted on the nucleus of the cell, and thereby on the cell processes which control growth. The conclusion is important, because much has been made of the apparent resemblance between the injuries due to irradiation and those due to other causes, such as temperature changes, oxygen lack, etc. Such agents tend to injure protoplasm generally: doses of radiation of the order of 100,000 *r* will produce such general non-specific effects, but doses of the order of 1,000 *r*—that is, of the therapeutic order—have only a specific effect by selectively injuring the nuclei of dividing cells. The action is a graded one, ranging from a completely reversible inhibition of growth to an inhibition that results in the death of the cell. The difference between the sensitivity of dividing cells and that of non-dividing cells is often enormous, and no such difference has been established for any type of injury except that produced by x and γ rays. The demonstration that the action of radiation is specifically upon the cell nucleus and that it is unrelated to other kinds of cell injury, and that, furthermore, it is of a graded character, leads to the conclusion that the "quantum hit" theory is quite untenable. This theory supposes that the survival curves of a number of cells exposed to radiation show the relation between the dose of radiation and the percentage number of cells that have received by chance a sufficient number of quantum hits to produce death. This is the theory adopted by most physicists to explain the varying radiosensitivity of cells. The alternative theory—that the survival curves express the distribution of the variation of the resistance of the individual cells irradiated—is that preferred by most biologists, and may now be said to be established. What is more, variations in radiosensitivity of different types of cells and of tissues at different stages of development are of far greater significance than the variations during the mitotic cycle of any particular type

[2] *British Medical Journal*, 1935, **1**, 551.
[3] Memo. 191 Med. H.M. Stationery Office. (1d.)
[4] *British Medical Journal*, 1936, **1**, 74.
[5] *Anesth. and Analges.*, 1931, **10**, 281.
[6] *New Engl. J. Med.*, 1933, **203**, 949.
[7] *British Medical Journal*, 1935, **2**, 1128.

[1] *Some Quantitative Aspects of the Biological Action of X and γ Rays*. By C. M. Scott. Med. Res. Counc. Spec. Rep., No. 223. H. M. Stationery Office. (1s. 6d.)

of cell. Dr. Scott emphasizes that radiations do not directly stimulate normal activities of the cell. Their primary effect is always an injury. Small doses of irradiation produce genetic effects or analogous changes in somatic cells, larger doses inhibit growth, and still larger doses result in so severe an injury that death of the cell results. As regards the time-intensity factor, he concludes that the biological effect of a given quantity of radiation is less when administered over a long time than when the same quantity is given in a short time, but that as the time is further shortened there comes a point beyond which the time-intensity factor ceases to influence the biological result. The time-intensity factor can be most simply explained in terms of the recovery processes of cells, so that further progress in the technique of radiotherapy depends upon greater knowledge of such processes. Dr. Scott also finds that the influence of the wave-length of a radiation is relatively small, producing biological actions that vary over less than a fivefold range. The general tenor of this report is a great encouragement to the radiotherapist in that a biological approach to the problems of the clinical use of radiations is shown to be of more importance than the physical; at the same time future progress depends upon careful measurement, both physical and biological, whenever any tissue is irradiated.

SPLANCHNIC PAIN

In a recent paper Leriche[1] describes the occurrence of pain on dividing the splanchnic nerves in two patients operated on under spinal anaesthesia extending from the first lumbar segment. Under perfect parietal anaesthesia the splanchnic nerves were exposed below the diaphragm through an incision under the twelfth rib. An attempt to divide with scissors the left greater splanchnic in a vigorous man suffering from thrombo-angiitis was followed immediately by complaint of severe pain in the region of the heart; this lasted until the central end of the partly cut nerve was infiltrated with novocain, when it disappeared at once; section of the lesser splanchnic was not felt. In a second patient suffering from hypertension partial division of the right splanchnic provoked a cry of pain, localized in the right lung. Again infiltration of the central end of the nerve arrested the pain. Leriche supposes first that the appearance in these patients of pain referred to the heart and lung must be attributed to events taking place in these organs. He suggests, therefore, that in man stimulation of the central end of the splanchnic nerve produces reflex vasoconstriction in the heart and lungs, and that such vasoconstriction gives rise to pain; some such reflex, he supposes, may be responsible for the well-known influence of meals on the occurrence of angina pectoris. The facts which Leriche brings forward are not as yet controversial, but it is quite unnecessary to invoke reflex vasoconstriction to explain them; there is no evidence that vasoconstriction in the lung produces pain, and, as Wayne and Graybiel[2] have pointed out, the influence of meals on angina pectoris is probably due not to a reflex from the stomach but to increased cardiac output. It is certain that pain can be evoked from the abdominal viscera under certain circumstances, such as distension, and it is known that such pain is often referred to a part of the body surface not overlying the offending viscus. It is probable that the nerve impulses responsible for visceral pain travel with the sympathetic nerves, including the splanchnic, and it may be suggested that the pain in Leriche's cases was a direct appreciation by the sensorium of the afferent impulses set up in these nerves by mechanical stimulation. Reference of pain to heart and right lung suggests that the afferent fibres in the left nerve came chiefly from the stomach, and in the right nerve from the region of the liver, or diaphragm.

[1] *Presse méd.*, 1937, **45**, 971.
[2] *Clin. Sci.*, 1933–4, **1**, 287.

LORD NUFFIELD HONORARY FREEMAN OF THE SOCIETY OF APOTHECARIES

Lord Nuffield's great and generous services to medicine received further recognition this week when on August 17 the honorary freedom of the Society of Apothecaries was bestowed upon him at a full meeting of the Court of Assistants. Introducing to the Court "our distinguished visitor, whom you are about to admit to the honorary freedom of this ancient society of craftsmen," Dr. E. W. Ainley Walker said that Lord Nuffield was especially known to the medical profession by the splendour of his munificent benefactions to medicine and by the magnificence of his noble deeds. In every department of sound and sane humanitarian effort his name held a foremost place. The extent of his generous gifts and immense endowments was almost unprecedented. The greater part of these had been devoted to the alleviation of suffering and the improvement of the health and well-being of the less favoured of his fellow countrymen. The Master of the Society of Apothecaries, Dr. A. P. Gibbons, then presented to Lord Nuffield the certificate of freedom in a casket of cedar wood cased in royal blue morocco leather, bearing the Society's coat of arms in gold. The ceremony was followed by a Court dinner. It is customary at Court dinners that there should be no speeches, but on this special occasion the Master said he would break the custom. In proposing the toast "Our New Honorary Freeman," he said in a brief and gracious speech that Lord Nuffield had conferred enormous benefits on medicine and humanity in general, and had honoured them by accepting the freedom of the Society. In reply, Lord Nuffield said that he would like them to feel how deeply he appreciated the honour bestowed upon him. He would in the future try to continue to do what he had done in the past, and to help medicine and surgery and the teaching that brought about the results that were being achieved to-day. He would do what little he could to alleviate human suffering. Those who had the advantage of good health should help those who were less fortunate.

We print at p. 394 a letter from Sir Frank Colyer asking for gifts of old types of instruments for the extraction of teeth, especially the early nineteenth century types. It will be much appreciated if any reader possessing these will forward them to the Royal College of Surgeons, where they are wanted for the odontological section of the museum.

ANAESTHESIA IN GENERAL PRACTICE

This is one of a series of articles, contributed by invitation

BASAL ANAESTHESIA FOR SHORT OPERATIONS

BY

J. H. T. CHALLIS, M.R.C.S., L.R.C.P.

As this article is intended essentially for those general practitioners desiring to administer basal anaesthetics four main principles have been kept constantly in view. All practical technique will be dealt with in detail so far as possible. Dosage has been selected with the idea of playing for safety. Expensive apparatus and elaborate technique have been avoided. Only those drugs which have been duly tried and found by constant use to be satisfactory to anaesthetists will be described.

Evipan and Pentothal Sodium

Basal anaesthetics of note for short operations can be limited to evipan and pentothal sodium. The first is produced by Bayer's Products Ltd., London, and the second by Abbots Laboratories, Ltd. They are both administered by the intravenous method, and have many properties in common. The advantages of these basal anaesthetics other than as a premedication can be summed up as follows. They provide a most pleasant form of inducing anaesthesia. There is some elimination of post-operative vomiting. By their use irritating inhalants are avoided. There is quick recovery of consciousness.

Patients who are going to be given a basal anaesthetic should be in a nursing institution and under the direct care of the nursing staff for at least twelve hours following anaesthesia. In a great number of cases this is impossible, but every care should be taken that the patients are properly looked after, as in a few isolated instances mental symptoms have occurred after an apparently perfect return to consciousness even as late as some eight or ten hours following administration of the drugs.

Pre-operative Preparation

Though it is not absolutely essential premedication by omnopon 1/3 grain and scopolamine 1/150 grain at least one hour before the induction of anaesthesia is of value, doses naturally being diminished in the case of young people or the old and feeble.

Although many prolonged operations have been performed under these basal anaesthetics it is not considered advisable, except for those with considerable experience, to employ them for surgical procedures lasting more than from ten to fifteen minutes. As the time of anaesthesia is limited it is desirable that all pre-operative preparations should be carried out before the induction, probably the most important of these being the placing of the patient, if possible, in the necessary position for a particular operation. Once the needle has been introduced into the vein gross movements of the patient, such as turning him into the left lateral position, tend to displace the needle and necessitate reintroduction. In the lithotomy position the patient can be placed well down the table, though the actual elevation of the legs need not be attempted until anaesthesia has been obtained.

It is as well to mention that these barbiturates cause a fall of blood pressure, and it is therefore not advisable to administer them other than in the recumbent position; although it must be admitted that this is constantly done with apparently little ill effect, as in dental operations.

Preparation of Evipan and Pentothal Sodium

Evipan is supplied in a glass ampoule holding one gramme of white powder, and with it another ampoule of 10 c.cm. of sterile water. The two are thoroughly mixed some ten minutes before use, and are then drawn up into an ordinary 10 c.cm. Record syringe with an eccentric nozzle, thus making a 10 per cent. solution. Pentothal sodium is also put up in ampoules containing either 0.5 gramme or 1 gramme, and is yellow in colour: 10 or 20 c.cm. ampoules of sterile water are purchased separately. The water and pentothal sodium are mixed together so as to prepare either a 5 per cent. or a 10 per cent. solution. Neither of these preparations should be used if it has been mixed for more than two hours.

Syringes and needles employed for intravenous work can be sterilized either by being kept in spirit or by boiling. The latter tends to be expensive as so many syringes crack. Whichever method is adopted it is well to wash all the parts thoroughly in distilled water before using. The skin should be cleaned with spirit or iodine before introducing the needle. For actually mixing the preparations an old spinal needle is of great advantage, as it is sufficiently long to go to the bottom of the ampoule, thus thoroughly mixing the contents without spilling them, and leaving the intravenous needle ready for use in perfect condition.

Method and Technique of Administration

Before deciding to administer either of these basal anaesthetics it is as well to examine the patient and to ascertain if he or she has suitable veins for an intravenous injection. There is no greater disappointment to the patient or the anaesthetist than failure of this type of anaesthesia if it has once been promised. Any vein that appears to give easy entry will do, with the exception of a varicosed one, in which the drug is likely to stagnate, thus producing slow anaesthesia, possibly thrombosis, or damage to the vein.

The vein selected (usually the median basilic in the antecubital fossa is most convenient), manual pressure is applied or a constricting band is placed above the site chosen and sufficient pressure exerted to engorge the vein but not to impede the arterial pulse. This is best done by an assistant constricting the arm above and steadying the patient's wrist below. Any tourniquet that cannot be immediately and smoothly released tends to change the position of the intravenous needle and jerk through or out of the venous wall. A sharp needle with a short bevel, about 1½ inches long, size No. 17, is most suitable. Blood is aspirated into the syringe to ascertain whether the needle is in position; when it is, it is most important that the manual pressure or constricting band should be completely released, otherwise it is possible for a large dose of the injection suddenly to be liberated into the blood stream.

Two to three c.cm. are injected in about fifteen seconds, during which time the patient is encouraged to talk or asked to count. Unconsciousness occurs in about fifteen to thirty seconds. A safety pause in the administration is very advisable at this point to ensure that the patient's

condition is within the normal limits of safety. The time taken to inject the next 3 or 4 c.cm. should be approximately thirty seconds, when another safety pause is essential, after which, if it is deemed necessary, the remainder of the syringeful can be injected.

The main points to watch during the whole time of administration are that (1) the patient has a perfect airway and the jaw is well supported ; (2) depression of respiration is not allowed to progress too far ; (3) the pulse rate should not rise. Should it be thought necessary to prolong the anaesthesia the syringe can at this stage be refilled in preparation for further injections. If anaesthesia is being used for operations in the mouth it is essential that a prop or gag should be introduced before the onset of anaesthesia, as spasm of the jaw may make the operation difficult if not impossible.

The signs of the onset of anaesthesia are slurring speech and depressed respiration ; nystagmus ; sometimes sighing or yawning ; pupils small and turned down, later becoming central ; early loss of corneal reflex. During the induction stage tremors or movements may occur with evipan, but rarely with pentothal sodium.

Indications and Contraindications

Basal intravenous anaesthesia may be used as a premedication to put patients completely to sleep in their beds ; for short surgical procedures such as dental extractions, insertion of radium, dilatation and curettage, eye operations, painful dressings, etc ; to counteract ether convulsions ; for childbirth, especially in mental patients—when 2 c.cm. of 10 per cent. pentothal sodium should be given at the onset of strong pains, 2 c.cm. more after one minute, and then 1 c.cm. as required.

The following are contraindications to basal intravenous anaesthesia.

1. Patients who have any respiratory obstruction or dyspnoea. Operations on the air passages.

2. Liver diseases or any impairment of its function. Kidney disease is not considered a contraindication, but should this be advanced it would be well to avoid this type of anaesthetic.

3. In children, in whom small air passages make it difficult to maintain a perfect airway. It is also difficult to give intravenous injections to a child.

4. Hypotension, hypertension, and myocarditis are poor anaesthetic risks generally.

5. Toxic patients, who take a long while to eliminate the drug.

Comparison of Evipan and Pentothal Sodium

Those about to embark on intravenous anaesthesia would be advised to start with evipan, for the following reasons. Should the drug be injected into the tissues outside the vein no local reaction will occur with evipan, although there will be a failure of anaesthesia ; with 10 per cent. pentothal sodium acute local inflammation and even ulceration may take place, especially if not recognized and treated immediately with hot packs for five or six hours. Even with a 5 per cent. solution local reaction may occur and should be carefully treated. Respiratory depression is less marked with evipan. The depth of anaesthesia is usually not so great with evipan. Some patients complain of a smell or taste of sulphur after anaesthesia with pentothal.

The advantages of pentothal sodium are as follows. The induction is smoother and there is less likelihood of twitching and jactitation, which do occasionally occur with evipan, especially if it is mixed immediately before use. The fall of blood pressure is less marked. The depth of anaesthesia is more profound. Therefore, if a 10 per cent. solution is used its rate of injection should be much slower than as described in a previous paragraph, and a third or even fourth safety pause introduced during the injection of the 10 c.cm. Premedication is not essential, but, if given, much smaller doses of pentothal are required. Post-operative vomiting when pentothal has been administered alone is practically unknown.

Antidotes

The main complications are respiratory depression or respiratory embarrassment caused by lack of a perfect airway. The obvious remedy is to maintain so far as possible a perfect airway and to administer respiratory stimulants. By far the most efficient is carbon dioxide, 5 per cent. or 7½ per cent. in oxygen, administered under slight pressure in a closed bag. Lobeline 3/20 grain may be injected subcutaneously, or, in bad cases, intravenously. Coramine, 5 c.cm. hypodermically or 3 c.cm. intravenously, is of the greatest value in cases of collapse.

In the event of a patient becoming restless and more or less uncontrollable following this type of anaesthesia the intravenous injection of omnopon 1/3 grain will be found immediately to have the desired quietening effect.

The annual congress of the Chartered Society of Massage and Medical Gymnastics will be held at the London School of Economics, Houghton Street, Aldwych, W.C., from Monday, September 20, to Friday, September 24. The meetings are open to all medical practitioners, and lectures will be given as follows: September 20, 10.30 a.m., Professor G. R. Girdlestone, "Treatment of Scoliosis in an Orthopaedic Hospital"; 12 noon, Miss Maud Forrester-Brown, M.S., M.D., "The Place of Physiotherapy in the Treatment of Injuries"; 2.30 p.m., Mr. K. O. Parsons, "Treatment by Manipulation." September 21, 10 a.m., Mr. A. Lawrence Abel, "Surgery of the Sympathetic Nervous System"; 11.30 a.m., Mr. J. G. Yates Bell and Dr. F. S. Cooksey, "Faradism and Pelvic Floor Exercises for Urinary Incontinence"; 2.30 p.m., Dr. A. T. Todd, "A System of Treatment for Chronic Rheumatism"; 8.30 p.m., Dr. Noel Harris, "Hysteria." September 22, 10 a.m., Dr. Doris M. Odlum, "Psychological Factors in Physical Disease"; 11.30 a.m., Mr. H. J. Seddon, "The Application of Occupational Therapy to Orthopaedic Conditions"; 2.30 p.m., Dr. W. S. C. Copeman, "Chronic Rheumatism." September 23, 10 a.m., Mr. A. E. Porritt, "Ruptures—Ancient and Modern"; 11.30 a.m., Lady Barrett, "Effect on Maternity of Physical Activities during Adolescence"; 2.30 p.m., Mr. A. Wilfrid Adams, "Orthopaedic and Other Operations under Spinal Anaesthesia"; 6 p.m., Miss E. R. Clarke, "Development of the Movement to Improve the Physical Fitness of the Nation"; 8.30 p.m., Dr. J. Kalmanson, "Indications for Short-wave Therapy." September 24, 10 a.m., Mr. E. R. Desoutter, "Artificial Limbs"; 11.30 a.m., Dr. Clement Nicory, "Importance of the Physical Therapeutist in Preventive Medicine"; 2.30 p.m., Dr. R. L. Kerr, "Remedial Exercises in the Treatment of Abnormalities of Binocular Vision and Asthenopia"; 6 p.m., Miss Ann Driver, "Music and Movement"; 8.30 p.m., Founders' Lecture by Mr. H. A. T. Fairbank, "Some Unusual Causes of Backache." The annual general meeting will be held on September 20, at 5.30 p.m., and will be followed, at 8 p.m., by a debate and discussion. The annual dinner will be held at the Café Royal, Regent Street, W., on September 22, at 7.30 p.m. Arrangements have been made for visits to be paid to various hospitals and institutions during the congress, and practical classes will be held daily. Applications for tickets and for all information regarding the exhibition and annual dinner should be made to the secretary, Chartered Society of Massage and Medical Gymnastics, Tavistock House North, Tavistock Square, W.C.1.

INTERNATIONAL HEALTH

SURVEY OF THE PERMANENT COMMITTEE

The report of the medical director of the International Health Office of the proceedings at the session of the Permanent Committee in May, 1937, has now been issued.[1] Dr. M. T. Morgan of the Ministry of Health was the delegate of the United Kingdom. It was reported that Turkey, Greece, and Czechoslovakia have further ratified the Convention for Mutual Protection against dengue fever, signed at Athens in 1934. An international arrangement to overcome difficulties connected with the transportation of corpses has been signed by the plenipotentiaries of nine countries. With regard to the Brussels Agreement, 1924, for the treatment of sailors suffering from venereal diseases, the adhesion of Germany was noted, as was the receipt of further replies favourable to the acceptance of the Committee's recommendations on the organization of the treatment to be offered. Communications from several countries and observations made in Great Britain and Australia concerning the deratization of ships confirm the fact that the number of ships with a large rodent population on board has strikingly diminished. Other interesting problems which were discussed arose in connexion with the Mecca Pilgrimage and the danger of the spread of yellow fever by persons using international air lines.

Plague

Papers on this subject included a general survey of plague in French Colonies (West Africa, Madagascar, and Indo-China) in 1935 and 1936. In Indo-China there have been few cases in recent years, but the disease persists in three restricted foci where it assumes a seasonal character, the greater number of cases occurring during the hot weather. Most of the cases are sporadic, and there is no apparent connexion between them and murine plague: the proportion of primary pneumonic plague cases is 10 per cent. In Madagascar plague has been gradually extending, particularly towards the south, ever since its introduction in 1921. In 1935 and 1936 the proportion of pneumonic cases was 28 and 27 per cent. respectively. This form of the disease is present all the year round, but especially in the cold season. The other forms are most common in the hot weather, corresponding with the prevalence of *Xenopsylla cheopis* and the existence of murine epizootics. Although thousands of rats were examined (75,339 in six years) few plague-infected ones were found.

For anti-plague vaccination in French West Africa various killed vaccines are widely used; they do not seem inefficacious, but are not of great service for plague prophylaxis. In Madagascar 710,852 persons out of a million inhabitants in the plague zones have been vaccinated with Girard and Robie's living avirulent virus. The results were unfavourably influenced by the fact that the experiment coincided with a violent outbreak, and the vaccination could not be carried out in all districts before the epidemic reached them. In spite of this the approximate number of 2,000 cases for 1936 compares well with the average of 3,500 for preceding years. In the best vaccinated districts (77 per cent. of the population) the morbidity rate was 0.59 per 1,000, as against 3.6 in the control districts.

Cholera

Work has been done in India, under the direction of the Consultative Committee for Cholera of the Indian Research Fund Association, to determine if possible the true characteristics of cholera vibrios. Agglutinating sera of pure type O were used, obtained by injecting into a rabbit heated dried antigens, furnished by Bruce White and Gardner. The strains employed were the original type Inaba and the type called "variant" of Ogawa, representatives of Group I of the classification of Gardner and Venkatraman. This vibrio possesses the fermentative properties for sugars which characterize Type I of Heiberg: fermentation of mannose and of saccharose, but no fermentation of arabinose. Its reaction to cholera red is positive, and to the Voges-Proskauer reaction modified by the addition of naphthol-A negative. It does not haemolyse goat's blood. The two Japanese strains "Inaba" and "Ogawa" show all these biochemical characters, but from a serological point of view they have a distinct individuality. Thus for diagnosis two sera prepared respectively from these two strains, or more generally a bivalent serum, must be used.

Colonel Taylor's report tends to show that vibrios not agglutinable by Type O serum which have been isolated from clinical cases of cholera are not true pathogens; the true cholera vibrio may have escaped discovery, and the non-agglutinable vibrio which had been isolated may belong to a type which is perhaps present in the intestine of a fraction of the healthy population. Many of the strains which are not agglutinable by O type serum, and which are not isolated from clinical cases of cholera, show H agglutination. However, some vibrios isolated in the recent researches from clinical cases of cholera, of which some gave and others did not give typical biochemical reactions, showed H agglutination only. It seems, then, that it is not yet possible to use O type sera exclusively for the diagnosis of pathogenic cholera vibrios.

Yellow Fever

Continued researches in South America by the yellow fever services of Brazil and Colombia, in co-operation with the Rockefeller Foundation, have confirmed the existence of the so-called "jungle" yellow fever in rural areas in which there are very few inhabitants and no *Aedes aegypti*. The problem lies in discovering other possible hosts than man and other blood-sucking vectors than the Aedes.

In Great Britain vaccination against yellow fever has been performed with a pantropic virus attenuated by tissue culture without the addition of immune serum. Observations made on sixty-five cases would seem to justify the use of the virus in this manner. Repeated passage through rhesus monkeys does not seem to increase virulence, consequently a return to a virulent form need not be feared, nor does the virus appear likely to become neurotropic. Experimental infection of mosquitos by virus circulating in the blood of humans or monkeys has not yet been effected.

Small-pox

As a result of the extension of vaccination and revaccination against small-pox, this disease has practically disappeared from the U.S.S.R. There were 385 cases in 1936, and none in the first quarter of 1937; 47,461,305 vaccinations or revaccinations were carried out in 1935, and 39,869,718 in 1936. The usefulness of vaccination has been confirmed by experience in the war in Ethiopia. While there were numerous cases of small-pox among the Abyssinians, there was only one case in the Italian Expeditionary Force, all the members of which had been revaccinated. In Italy it is proposed to give vaccination against small-pox and the first injection of diphtheria anatoxin simultaneously; the second injection of anatoxin will be given ten days later; the age prescribed for vaccination will be the second year, a time preferable for diphtheria immunization, which will be made compulsory.

Other Infectious Diseases

In New Zealand an epidemic of poliomyelitis broke out at the beginning of December, 1936; by the end of March, 1937, 341 cases had been notified. In the first three months of the epidemic the percentage of non-paralytic cases was 42.9. It was considered necessary to close all the schools in New Zealand.

[1] Paris: Office International d'Hygiène Publique, 195, Boulevard St. Germain.

In the United States small, violent, and localized epidemics of cerebrospinal meningitis appear about every seven years. The most recent (1935–7) seems to be on the decline. Some are produced by a single type of meningococcus, others by several types; type I-III (type A in France) is the most frequent during the epidemic periods.

Epidemics of encephalitis, similar to the so-called St. Louis encephalitis, which has been prevalent in the United States, occur in Japan more or less every year in certain prefectures. The virus has been transmitted to monkeys by inoculation of the cerebral matter of dead persons, and then to the mouse, which is the most receptive laboratory animal; it is present in the brain of patients from the fourth to the tenth day of illness, and cannot be shown after the tenth day.

The increased incidence of scarlet fever in Rumania in recent years led to a campaign of inoculation by streptococcal anatoxin in 1934. Four injections were given at intervals of two and three weeks; in Bucarest 25,000 children were inoculated. Those that subsequently contracted scarlet fever were compared in two groups, one of 229 inoculated and the other of 776 non-inoculated children. Among the former there were more mild cases, fewer complications, and fewer cases of ulcero-necrotic angina (3.1 instead of 13.8 per cent.) and malignant scarlet fever (0.44 instead of 2.2 per cent.). The total mortality amounted to 0.44 per cent. among inoculated and 7.2 per cent. among non-inoculated children.

Tularemia

Tularemia has made its appearance in Central Europe (Lower Austria, Moravia, and Slovakia) and in Turkey in Europe. The first case in Lower Austria was notified in 1925, and the second in September, 1936, followed by about a hundred cases in the adjoining district on the Moravian frontier. Then the disease appeared in Southern Moravia at the end of October, 1936. Thirty to forty-five days before the first human cases a great mortality was reported among field voles and then among hares. From Moravia the disease spread to the southern part of Slovakia. In all, up to April 15 there were 391 cases in Czechoslovakia, of which 277 occurred in Moravia, 110 in Slovakia, and 4 at Prague (caused by hares coming from infected districts). The forms were glandular and ulcero-glandular, and occasionally typhoidal; there were also oculo-glandular forms, with slight ocular lesions. Contact with hares was proved in 90 per cent. of cases; the others were caused by contact with wild rabbits and mice. The place of entry was sometimes a small skin wound, but in other cases the place of the initial lesion seemed to be the mouth or throat, and the illness began with angina accompanied by extensive oedema.

In Turkey the first cases were discovered in June, 1936, among soldiers in the garrison of Luleburgaz in Thrace, and continued to occur up to the end of September. The forms were generally glandular or oculo-glandular (32 per cent).; none were typhoidal. *Bacterium tularense* was isolated from human cases. The infection would appear to come from wild rabbits. It may have been transmitted by insects in some cases, but investigations which were made on this point—possibly too late—were not conclusive.

D. Ciddio (*Policlinico*, Sez. Chir., May 15, 1937, p. 246) in order to determine the results on the kidney of the removal of the aortico-renal ganglion which forms part of the coeliac plexus, carried out the operation on six dogs under morphine and chloroform anaesthesia. He studied successively the functional changes in the corresponding kidney and also the histological lesions. In the first few days after the operation he found that the kidneys showed a considerable vasodilatation followed by vasoconstriction, and finally at the end of two and a half months a return to the normal condition. He comes to the conclusion that this operation might be indicated in suitable cases.

Local News

ENGLAND AND WALES

London Chest Hospital Pathological Laboratories

The report for 1936 of the Pathological Laboratories of the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park—to be known from now on as the London Chest Hospital—contains the usual summary of post-mortem records and of the routine laboratory examinations carried out for the out-patient department and in the in-patients. They totalled no fewer than 10,307. In addition 1,981 examinations were undertaken for various public bodies, consisting mainly of the examination of milk samples, swabs for diphtheria, and histological examinations. The report also contains reprints of four papers published by the staff of the laboratories. Three articles are by Dr. Gloyne. The first describes the morbid histology of pulmonary abscess cavity walls; in one case the cavity was bronchogenic, in the other associated with an interstitial abscess. In the second paper are given the results of an investigation into the relation of congenital heart disease to pulmonary tuberculosis. The 2,735 necropsy records at the hospital between 1889 and 1935 showed twenty-one cases of defects of the heart "which may be presumed to have been congenital." Six of these had tuberculous pulmonary lesions. But such lesions were not present in the six cases of congenital heart disease that were associated with cyanosis. Dr. Gloyne's third paper gives an account of a case of oat-cell carcinoma of the lung occurring in asbestosis. The last paper is by Dr. Shishkin. She concludes from her investigations that there is no evidence that infection of rabbits with virulent bovine tubercle bacilli has any effect on the *p*H of the blood.

Medical Society of London

The first half of the session 1937–8 of the Medical Society of London will open on Monday, October 11, with the annual general meeting at 8 p.m., followed by Mr. J. E. H. Roberts's presidential address on "Sick Nursing—Past, Present, and Future" at 8.30 p.m. On Monday, October 25, at 8.30 p.m., a discussion on treatment by intravenous infusion will be introduced by Dr. George Graham, Mr. G. Gordon-Taylor, and Dr. H. I. Coombes. A discussion on national physical training will be opened by Sir Joseph Barcroft, F.R.S., Lord Burghley, Dr. Adolphe Abrahams, and Mr. A. E. Porritt, on Monday, November 8, at 8.30 p.m. A clinical meeting will be held on Monday, November 22, at 8 p.m. On Monday, December 13, at 8.30 p.m., Mr. H. W. Rodgers, Dr. G. T. Calthrop, and Dr. S. Cochrane Shanks will introduce a discussion on modern methods of investigating gastric diseases. The Lettsomian Lectures, on a survey of the changes and results of treatment of diabetes in the last fifteen years, will be delivered by Dr. George Graham on February 21 and March 2 and 7, 1938, at 9 p.m. Sir Henry Gauvain will deliver the annual oration on "Planning a Hospital" on Monday, May 9.

Cancer Research in Yorkshire

The annual report for 1936–7 of the Yorkshire Council of the British Empire Cancer Campaign records a benefaction of £25,000, the gift of one of the honorary treasurers, Sir Algernon Firth. The report includes accounts of the progress of cancer research in the Universities of Leeds and Sheffield. In a study of the problem of industrial cancer of the bladder attempts were made to demonstrate the presence of carcinogenic constituents in the urine of workmen employed in the aniline dye industry. Large quantities of urine were extracted and tested for carcino-

genic activity by painting the skin of mice. The results of these tests, however, were completely negative. In the course of experiments on the action of different chemical substances on cancerous growths, with a view to the discovery of some substance specifically destructive to the growth while not unduly toxic to the body, the action of iodine on Rous sarcoma was investigated. The filterable agent was found to be very susceptible to minute quantities of iodine, a dilution of 1 in 5,000 always destroying the power of carcinogenesis when added to a cell-free filtrate. With a concentration of not less than 1 in 750 the filterable agent in sarcomatous cells was killed. The action of iodine thus appeared to be superior to that of potassium permanganate, which had been investigated in the previous year, a concentration of 1 in 200 of this salt being necessary to destroy the filterable active substance. In a further series of experiments, however, the effects of intravenous injection of iodine on fowls bearing Rous sarcomas were disappointing.

SCOTLAND

Mental Hospitals' Pathological Scheme

The annual report for 1936 of the Scottish Mental Hospitals Pathological Board records a marked increase in the amount of material examined. The report refers with regret to the resignation of the Board's pathologist, Dr. J. A. Biggart, who has been appointed to the Chair of Pathology at Queen's University, Belfast. It is stated that Dr. Biggart was responsible both for the organization of the work of the laboratory and for the formation of a valuable collection of photographs, specimens, and slides, in addition to routine examinations and original research. His successor is Dr. A. C. P. Campbell. In order to foster relations between clinical workers and the laboratory the Board has instituted quarterly demonstrations on the pathological aspects of mental disease for the medical officers of contributing hospitals. Although the possibility of some form of itinerant laboratory, or even the eventual provision of several laboratories in the asylums themselves, is envisaged in the future, it is considered that the present laboratory in the Edinburgh Royal Infirmary meets satisfactorily the needs of the moment. Under the existing arrangement it is in close touch with the general pathological laboratories of the University and the Infirmary, and also with other research laboratories, while its contacts with the asylums are not impaired.

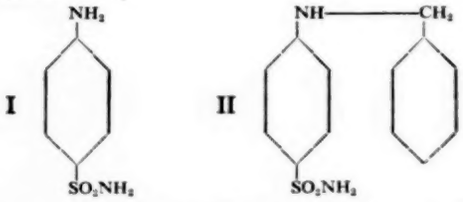
Scottish Health Education Campaign

A conference of representatives of Scottish local authorities was held in Edinburgh on July 29 at which Mr. Scrymgeour Wedderburn, Parliamentary Under-Secretary of State, outlined the proposals for a health education campaign in Scotland during the coming autumn and winter. He explained that the Prime Minister was to inaugurate a National Campaign at a conference to be held in London on September 30, and it was hoped that the Scottish local authorities would be prepared to give their full co-operation. The plan of the campaign to be followed in England was to enlist at the outset the public interest in the health services generally, and thereafter to concentrate month by month on giving publicity to the various individual services. It was proposed, however, that the campaign in Scotland should take rather a different line and aim not only at urging the fuller use of the existing services but also at encouraging the maximum development of those services within the framework of existing legislation. During the autumn months full publicity would be given to the Scottish health services, and for this purpose the Department of Health for Scotland was prepared to provide local authorities with publicity material. Following this initial campaign there would be a preparatory stage during the winter and spring leading up to a further intensive effort in the summer of 1938 associated with the Empire Exhibition in Glasgow. There would be close association with the Physical Training and Keep Fit Movement in Scotland. The campaign would obviously depend very largely for its success upon the efforts of local authorities in carrying out local propaganda work.

Correspondence

Nomenclature of Sulphanilamides

SIR,—In a letter from Dr. Alfred Model (*Journal*, August 7, p. 295) there appears to be some confusion between *p*-aminobenzenesulphonamide and *p*-benzylaminobenzenesulphonamide. The former drug is the amide of sulphanilic acid (I), and the term "sulfanilamide" has been adopted for it by the Council for New and Non-official Remedies of the American Medical Association. It is distributed in this country under several proprietary names, such as prontosil album (Bayer), sulphonamide-P (Burroughs Wellcome and Co. and British Drug Houses), streptocide (Evans Sons Lescher and Webb). The latter drug, *p*-benzylaminobenzenesulphonamide (II), is distributed in this country only by Pharmaceutical Specialities (May and Baker) Ltd., under the proprietary name of proseptasine.



These two substances differ considerably in chemical, physical, and pharmacological properties (Halpern, B. N., and Mayer, R. L., *Presse méd.*, 1937, **45**, 747; Whitby, L. E. H., *Lancet*, 1937, **1**, 1517), and it is therefore of the greatest importance to avoid confusion between them. Further, it is probable that more members of this group will be introduced into medical practice, so that accuracy in nomenclature is essential. For this reason I suggest that we should follow the example of Dr. A. T. Fuller (*Lancet*, 1937, **1**, 194), and of the Americans, and use the term *sulphanilamide* for any brand of *p*-aminobenzenesulphonamide, and the term *benzylsulphanilamide* for any brand of *p*-benzylaminobenzenesulphonamide, since these names are reasonably convenient and are chemically specific.

The case of agranulocytosis recorded by Dr. Model is, I believe, the first to be associated with benzylsulphanilamide; some half-dozen have been associated with sulphanilamide, and at least one (Borst, J. G. G., *Lancet*, 1937, **1**, 1519) with the original (insoluble) red prontosil.—I am, etc.,

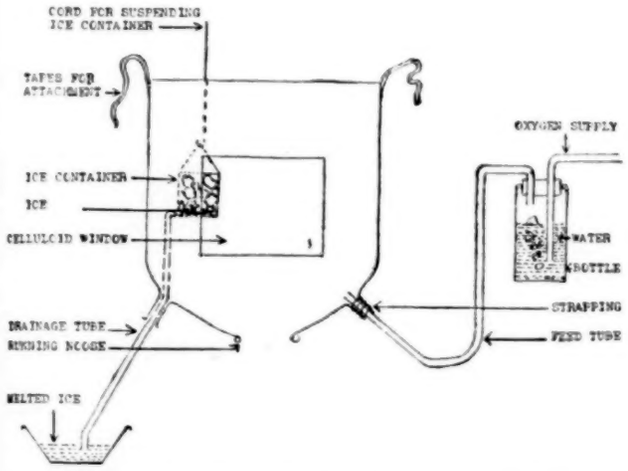
G. DISCOMBE.

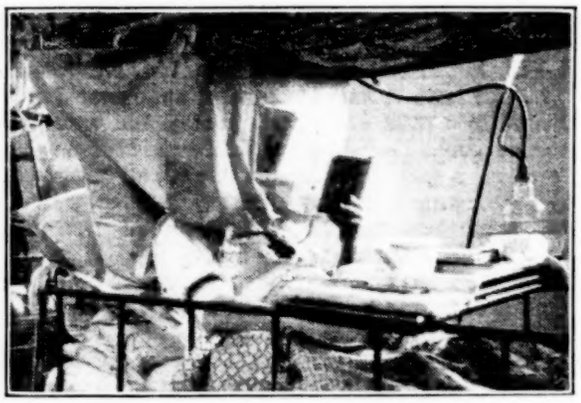
St. Bartholomew's Hospital, London, E.C.1.
Aug. 10.

"Home-made" Oxygen Tent

SIR,—It was with great interest that I read in the *Journal* of April 17 (p. 812) a description of the St. George's Hospital oxygen tent. I attach a photograph of an oxygen tent which was constructed by the sailmaker on board and used with great success in H.M.S. *Shropshire* for a case of myocardial degeneration with con-

gestive heart failure. The material used was jaconette, a lightweight and waterproof material which is almost transparent. The tent was constructed in the shape of a square funnel, the bottom being fitted round the patient's neck by means of a running noose and the top left open and attached to the cot above. A cleared *x*-ray film was stitched to the front as a window. The oxygen was led through a rough flowmeter and was not iced. It entered the bottom of the tent and the tube was secured to the jaconette by means of surgical strapping. An irrigation can full of ice was, however, suspended inside the tent with a rubber tube to lead the melted ice away.





The whole thing took about an hour to make. Any housewife worth her salt could make a similar one in as short a time. Its therapeutic efficiency was manifest. On April 7, for instance, an impending Stokes-Adams fit was staved off by its use. The patient was extremely cyanosed, with a completely irregular pulse which had slowed from 100 a minute to 40, and was complaining of acute precordial pain. He was very dyspnoeic, respirations being 36 a minute. There was twitching of the muscles of the face and arms. Before the onset of the slow pulse gallop rhythm had been present, with a well-marked mid-diastolic sound, and pulsus alternans had been felt at the wrist. He was placed in the tent at 2.30 on the afternoon of April 7, and half an hour later the cardiac pain had completely disappeared. At 6 p.m. the patient was a good pink colour, with a pulse of 100, strong and regular, and no bruit de galop present. Respirations were 20, and he was sitting in the tent reading a book. He was kept on board twelve days altogether, and for a large part of the time the tent was in use. He was perfectly happy inside it, the atmosphere always kept cool and fresh, and the celluloid window never misted over. He used to study his face with a small mirror and watch the colour gradually change from blue to pink on being put into the tent after a meal. When he was finally landed at Gibraltar oxygen was no longer necessary, and he could actually lie flat on his back without dyspnoea. The tent was light in weight and the material let so much light through that its use was never oppressive. It was found that it was important to keep the ice can replenished.—I am, etc.,

A. J. GLAZEBROOK,
Surgeon Lieutenant, R.N.

H.M.S. *Tedworth*, July 20.

Elongation and Dilatation of the Colon

SIR,—Professor J. R. Learmonth's conclusions on the above condition of the colon in children (*Journal*, July 24, p. 154) support the views I have formed from radiological observations on adults. The digestive tube possesses three main functions—secretion, absorption, and motility. Only the last of these interests the radiologist, with, in addition, a subsidiary function of storage. The search for organic lesions has induced radiologists to devote time to the study of anatomical appearances, and rather to ignore functional activity, because the latter is more difficult to assess.

Muscle, voluntary and involuntary, possesses two properties, tone and contractility. In the digestive tract contractility is recognized by various types of peristaltic action, and it is also well known, though not always appreciated, that peristalsis exhibits wide variations in health. For this reason its significance in pathological processes is difficult to assess, and it is often ignored therefore by the radiologist. Tone, the other property of muscle, is responsible for striking variations in the width and length of the alimentary tube in healthy individuals. More frequently than in the case of peristalsis have these normal variations been misunderstood by the radiologist. Such mistakes were largely responsible for the useless gastropexies and colopexies of former days, and to-day are responsible for the stress laid in some quarters on duodenal ileus, which is really a rare disease, though often simulated by the hypotonic duodenum.

Functional disturbances of the colon are common and occupy much of the physician's time, but the radiological evidence of their origin and even their presence is apparently trivial and very difficult to identify with certainty. All too often physiological variations are confused with some pathological process, because the variations are surprisingly wide in healthy persons. Too often, also, has the radiologist himself relied upon the clinical evidence for help in interpretation, and has converted a physiological variation into a pathological process. The "would-be" faddist physician and surgeon have often found support for some attractive theory from these unreliable *x*-ray reports.

Unlike Sir Arthur Hurst, whom Professor Learmonth quotes, I think a barium enema gives a good estimate of bowel tone rather than of mere distensibility when certain conditions are complied with. It depends on how the enema is administered: let a thinner suspension of barium be used and allowed to flow through a tube without any obstruction in its lumen at a constant pressure until an evacuation is threatened. If the sphincter ani possesses reasonably good tone and the patient's mentality is reasonably normal and there is no acute inflammatory condition within the abdomen, especially in the peritoneum, then the diameter of the colon forms a reasonably sound index of the colonic tone.—I am, etc.,

JOHN R. WYLIE.

London, W.1, Aug. 12.

When to Operate in Appendicitis

SIR,—May I reply to two letters which have appeared in the *Journal* in connexion with operation in acute appendicitis: one was by Mr. R. Rutherford (July 31, p. 244), and the other by Mr. R. S. Lawson (August 7, p. 294).

Mr. Rutherford suggests that the family doctor can carry out expectant treatment in the patient's home. This treatment requires nursing in a high Fowler's position, which necessitates the importation of a special bed, and constant charting of the pulse and temperature, which implies day and night nursing. I agree that in some homes these facilities might be provided, and possibly the usual domestic noises, including the telephone, which are so irritating to a sick person, might be stilled. But even if the patient can be nursed under the best conditions there still remains the 10 per cent. risk that expectant treatment may fail. An operation then becomes an urgent necessity, and either the patient must be transported to a hospital or nursing home when he should be enjoying absolute rest, or he must be subjected to an abdominal operation in an improvised theatre. An abscess can certainly be opened within "four walls and a roof," even if lighting facilities are rather poor, but most surgeons would prefer a recognized theatre in which to remove a possibly difficult appendix.

Mr. Lawson quotes a case in which a patient ignored "emphatic instructions" to return for appendicectomy after the successful drainage of an abscess. As a reminder to the patient many surgeons arrange for a card to be given him on which is printed the date on which he should return to hospital, with instructions that the card be placed in a prominent position in his home. Responsible relations as well as the patient are frankly warned of the risks of a subsequent attack. If the patient fails to return on the appointed date a further reminder is sent from the hospital. Occasionally the patient may wish to postpone the operation for a short time on account of occupational or domestic conditions, and in some cases a compromise is arranged, but it is very exceptional for warnings and reminders to be completely ignored. I know of no method of divining whether any given patient will fail to return for appendicectomy after successful expectant treatment, but if this argument is considered from the opposite angle surely Mr. Lawson would not submit innumerable tractable patients to an increased risk for the sake of the odd patient who might disobey emphatic instructions.—I am, etc.,

London, W.1, Aug. 10 R. J. MCNEILL LOVE.

Nutrition in Pregnancy

SIR,—I have read with much interest the reports of the papers on nutrition in pregnancy read at the Annual Meeting of the British Medical Association in Belfast and published in the *Journal* of August 7. Especially may I commend Dame Louise McIlroy's excellent paper (p. 258) for its sound, common-sense appreciation of things as they are, and as they should be. Her conclusion is admirable, and applies not only to maternal nutrition but to the wider problem of the nutrition of the whole human race. The significance of the problem of nutrition in its widest aspect has not hitherto been appreciated, and even now it receives far less attention than it merits. Indeed, we have scarce reached the stage of elimination of starvation, far less tackled the question of malnutrition. The evidence is widespread, for unfortunately the rifeness of malnutrition is only exceeded by its far-reaching effects, from vague ill-health to chronic invalidism, from lack of resistance to the common cold to the prevalence of puerperal pyrexia and sepsis. Its burden naturally falls most heavily on the poor, but the rich are by no means immune, for this great social evil, and such it is, springs from three roots. First, economic forces outside the control of the medical profession, but capable of being influenced by the force of enlightened public opinion. Secondly, lack of knowledge both of the rudiments of sound physiological feeding and of the preparation and composition of our food, this ignorance appertaining largely to professional as well as to lay minds. Thirdly, and following from the second cause, a failure to utilize what knowledge we have in the training of both the medical and nursing professions, and a consequent failure in the passing on of our knowledge for general usage.

The remedy is self evident—better education in these matters, first, for the medical student and nurse, secondly, for the lay mind through the professions. The machinery is there already, and may be operated through the Ministry of Health, the child welfare clinics and public health services, the women's institutes, and finally through the medium of the very considerable influence of the ill-used general practitioner. The day must come when the care of the sick as opposed to the care of health becomes only a part of the doctors' work, and not the whole, as it wrongly is at present. Until that day comes we can never hope for the conquest of disease, and I can think of no better start than the regulation of nutrition in pregnancy, that the next generation may at least start life under the best conditions.—I am, etc.,

Erith, Kent, Aug. 13. ERIC TOWNSEND, M.B., Ch.B.

Strangulated Ovary in Children

SIR,—In the *Journal* of August 7 (p. 266) Dr. Fridjohn and Mr. Lee have reported a case of strangulated ovary and hernia in a child aged three months, and have asked if anybody could provide them with details of any case that they have seen. During the last twenty-seven years I have met with four cases of strangulated ovary in infants under three months. They have all presented a very similar clinical picture—namely, that of a large strangulated inguinal hernia which could not be reduced and caused recurring attacks of sickness. I maintain that in a female child under five months the commonest content of an inguinal hernial sac is an ovary or Fallopian tube, and in any case which appears to be strangulated the odds are that this is a twisted ovary.—I am, etc.,

London, W.1, Aug. 11. CECIL P. G. WAKELEY.

Anaesthesia in General Practice

SIR,—Dr. Helen Lukis, in her article in the *Journal* of July 17 (p. 126), throws new light on the problem of the abuse of the voluntary hospitals. Apparently hospital patients have the advantages of nitrous oxide and oxygen, while her private patients are subjected to the admitted hazards and unpleasantness of open chloroform and ether. If this invidious class distinction be widespread, can we blame patients who strive to go to hospitals when they can well afford treatment in a nursing home? Dr. Lukis is at pains to stress the drawbacks of nitrous-oxide-and-oxygen apparatus. Her remarks convince me that she must be referring to apparatus designed many years ago; modern apparatus is admittedly costly in the first instance, but it is reliable. Chromium plate has removed the risk of rusting, rubber tubing is reduced to a minimum and lasts for years, while the impression Dr. Lukis leaves of anaesthetists sitting up late each night feverishly working

to give their apparatus "constant and careful maintenance" is far from being the case.

I should like to endorse what Dr. R. B. P. Lansdown says in his letter published in the *Journal* of July 31 (p. 243) concerning the eminent practicability and safety of avertin in general practice.—I am, etc.,

Hove, Sussex, Aug. 10. REX BINNING.

Prominal in Epilepsy

SIR,—Dr. Eager's comments (*Journal*, August 7, p. 295) on the articles by Drs. Millman and Henderson on the above subject are interesting and, at least to me, confusing. I understood from Dr. Millman's paper that he has proved under conditions of control rigid enough to pass through the eye of the statistical needle that in thirty-nine epileptics the average number of fits was reduced by two-thirds under prominal treatment as compared with luminal treatment. In recommending, as he does in the second paragraph of his letter, the "home-made" product, phenobarbitone soluble, Dr. Eager states that it produces "equally good results." Reference to the *British Pharmacopoeia* shows that the chemical substance contained in phenobarbitone soluble is identical with the sodium salt of luminal (though possibly, as only 95 per cent. purity is demanded, it is less pure). That phenobarbitone soluble might be equal in its effects to luminal is understandable, but the suggestion that "equally good results" may be obtained with it as with prominal seems to constitute to my mind rather a forcible dismissal of Dr. Millman's careful paper.—I am, etc.,

London, W.1, Aug. 9. RIPLEY ODDIE.

SIR,—In the *Journal* of August 7 (p. 295) Dr. R. Eager refers to his report on the Devon Mental Hospital for 1934, in which he says (page 26):

"Prominal has been tried on cases which had been treated by luminal without success, but did not produce any strikingly different results. Phenobarbitone soluble, the British equivalent of luminal, is now being used with equally good results. It costs 2s. 6d. per ounce, while luminal, manufactured abroad, costs 14s. per ounce."

Prominal (Bayer) is listed at 250 tablets for 18s. 6d., while phenobarbitone soluble in 1½-grain tablets (Parke, Davis and Company) costs 20s. 6d. for 500 tablets, or 10s. 3d. for 250. But it is the daily cost of treatment which matters, and the benefit the patient obtains in fewer fits and lessened confusion. Dr. Millman has reported a reduction of one-third in the number of fits in a year under prominal, and Dr. Henderson a 67.3 per cent. reduction (*Journal*, July 10, pp. 61 and 63).

My own results in ten selected cases show a reduction in fits of 81.5 per cent. in 917 fits during one year's treatment with prominal. The average daily cost was 0.83d. for each of these patients, as supplies of prominal were obtained in bulk at a much reduced price.—I am, etc.,

L. G. MILLAR PAGE,
Norwich, Aug. 11. Senior Medical Officer, Hellesdon Mental Hospital.

SIR,—I was interested to read Dr. R. Eager's letter in the *Journal* of August 7 (p. 295). He quite correctly draws attention to the cheapness of phenobarbitone soluble, but phenobarbitone soluble is sodium phenyl-ethyl-malonyl urea (similar, that is, to sodium luminal), and is not prominal (N-methyl-ethyl-phenyl-malonyl urea), for which I have not yet found a "home-made" substitute.—I am, etc.,

Lancaster, Aug. 15. C. J. HENDERSON.

Decline of National Intelligence

SIR,—I have never before written to expostulate over a review of one of my books, but as, shortly after the appearance of my monograph, *The Fight for our National Intelligence*, you have given space to a review of it which is inaccurate and misleading, I trust you will do me the justice of inserting this reply.

As the soundness of the statistics on which I base my conclusion that national intelligence is declining has withstood the test of examination by no less an authority than Professor R. A. Fisher, I do not think it is necessary to defend here in detail the scientific validity of my results. The criticism that "controls were lacking" may seem to the casual reader to imply a serious error of method, whereas in fact it implies that the critic understands neither scientific method nor statistical technique. In what sense could a control group function in this experiment? Sampling was so devised so as to be free from any systematic error, whilst the size of the population —3,734 families—was such that the probable error of the difference of the means for the two generations was negligibly small in comparison with the difference actually found. Likewise, the taunt that Major Leonard Darwin begins his introduction with an absurdity reveals only that the critic cannot distinguish a true paradox from a common absurdity. If "the very title of the book suggests a bias," so, too, to take a greater example, does Darwin's *Descent of Man* and every scientific monograph which makes the trend of its findings clear in its title.

Naturally I am delighted to hear that other and more extensive investigations are now to be made into this problem, which (I may be biased to think) is the most grave of all those with which our national life is now faced. But I can see no justification for the critic adding, gratuitously, from the vantage point of esoteric knowledge and the unassailable retreat of anonymity, that these are definitely "more scientific inquiries." Nor can I see any reason for taking Lord Horder to task when he speaks of the present results as constituting a "discovery."

Finally, the review contains some misleading inaccuracies—as, for example, that my definition of the "social problem group" includes "most of our elementary school children." I specifically state (on p. 107): "It is my contention that the 'social problem group' . . . is the less fortunate half of the subcultural fifth"—that is, that it constitutes one-tenth of the school population.—I am, etc.,

Leicester, Aug. 7. R. B. CATTELL.

In Search of Health

SIR,—In a recent issue you published a letter from me quoting the advice of Hippocrates on the necessity of studying the habits of diet of patients. Dr. R. A. Young, in his article "Perspective and Poise in Practice" also refers to this matter. I am sending the notes of a case that seems to illustrate the value of this advice.

A girl aged 10 years and 11 months was examined at the dispensary as a suspected case of tuberculosis. She was referred to me by the school medical officer on account of recurrent cough, poor appetite, and lassitude. Her mother gave the following history. The patient had had a cough from the age of 4 years and had been treated for bronchial catarrh at the out-patient departments of three different hospitals (the out-patient cards were produced)—1927, a children's hospital for two years; 1931, a chest hospital; 1934, a general hospital—and in 1935 at a school clinic (for swelling of neck). She had six weeks' convalescent treatment on the Isle of

Wight, but no benefit was obtained. She was at Clacton for a period of twelve months to December, 1934, and was very much better on her return.

She was examined at this dispensary on July 1, 1935. There was no evidence of tuberculosis; no bronchitis; only post-nasal catarrh. The chief symptoms were cough, some spitting, marked loss of appetite, refusal of all green vegetables, salads, and fats. The patient had never eaten cabbage, except when at Clacton. The mother stated that at two hospitals she was advised to give the child whatever food she asked for. Admission to a residential open-air school was advised with the express purpose of correcting the faulty dietetic habit and establishing a healthy habit. On her return five months later the mother reported that the child was eating all that came her way. The following is the weight record: July, 1935, aged 10 years 11 months, 74 lb.; October, 1935, 79 lb.; June, 1936 (after five months at open-air school), 93 lb.; November, 1936, 98 lb.; June, 1937 (weight of a girl two years older), 105 lb. On her last visit the mother reported that the child was eating green vegetables and fat, but refused lettuce.

The pilgrimage of mother and child in search of health, patiently pursued for seven years from one out-patient department to another of both general and special hospitals, relieved by sojournings in distant seaside resorts, recalls Maeterlinck's fantasy, *The Blue Bird*. The characters, Tyltyl and Mytyl, after many fruitless journeys in search of the blue bird of happiness, return home and discover that their own bird at home is the blue bird. The girl and her mother are discovering that the food on her plate, particularly the humble despised cabbage, is the source of health. It would appear that refusal to eat green vegetables and fat (green shyness and fat shyness) in this case was due chiefly to the swallowing of catarrhal products. In other cases it is, apparently, a behaviour disorder, and needs to be studied and treated accordingly.—I am, etc.,

P. A. GALPIN.
Tuberculosis Officer, Plaistow.

London, E.13, Aug. 9.

Radio Interference due to Electromedical Apparatus

SIR,—The Committee of the British Standards Institution is inquiring into radio interference caused by electromedical equipment. We have been asked to obtain replies to the following questions: (*a*) has mechanical rectification any advantage over valve rectification in any particular cases, and if so, what are the advantages, and in what cases do they arise; (*b*) how far is it desirable, apart from economic considerations, to use spark apparatus for diathermy?

We shall be glad if any of your correspondents could give us information that would help us to answer these questions.—We are, etc.,

RUSSELL J. REYNOLDS.
GEORGE F. STEBBING.

Lambeth Hospital, Brook Street, Kennington Road, S.E.11, Aug. 5.

Wanted: Old Instruments for Extracting Teeth

SIR,—As honorary curator of the odontological section of the Royal College of Surgeons Museum, may I appeal to your readers for the gift of old types of instruments for the extraction of teeth, more especially those instruments in use during the early part of the last century?—I am, etc.,

FRANK COLYER.

London, S.W.2, Aug. 12.

Obituary

JOHN GORDON THOMSON, M.A., M.B., F.R.C.P.

Professor of Medical Protozoology, London School of Hygiene and Tropical Medicine

We regret to announce that Professor John Gordon Thomson, Director of the Department of Medical Protozoology at the London School of Hygiene and Tropical Medicine, died on August 13. The son of the late Mr. William Thomson, F.E.I.S., Professor Thomson was educated at Bathgate Academy and Edinburgh University, where he graduated M.A. in 1903. In 1904–5 he was awarded medals in botany and physiology. He was senior Mackenzie bursar in anatomy, and acted as prosector to Professor D. J. Cunningham in 1905. In 1908 he qualified M.B., Ch.B. (honours) at Edinburgh, and in 1930 took his M.R.C.P.London, being elected a Fellow last year. Two years after qualification Thomson was appointed Durning-Lawrence research fellow in tropical medicine at Liverpool, and in 1912 pathologist to the Royal Southern Hospital in that city. He was also clinical and pathological research fellow at the Liverpool School of Tropical Medicine from 1912 to 1913, and in the latter year was appointed assistant honorary physician at the Liverpool Chest Hospital. After receiving a Beit Memorial research fellowship he came to London as lecturer in protozoology at the London School of Hygiene and Tropical Medicine. In 1915 Thomson went on a bilharzia mission to Egypt, where he served as a captain in the R.A.M.C., and acted as protozoologist to the Central Military Laboratory in Alexandria and as pathologist to the Seventeenth General Military Hospital. On his return to England he was appointed officer in charge of the malarial research laboratory at the War Office. He was secretary to the Section of Tropical Medicine at the Annual Meeting of the British Medical Association at Cambridge in 1920. In 1926 he was exchange lecturer in protozoology at the School of Hygiene, Johns Hopkins University. In 1930 he was a representative at the third International Congress on Malaria at Algiers, and at the request of the League of Nations Health Organization he gave in 1936 a series of lectures at Singapore at the special League of Nations course on malaria.

Professor Thomson travelled widely in South America and other tropical countries. In 1921–2 he went on two expeditions to investigate blackwater fever in Rhodesia, and in 1924 visited the West Indies, Honduras, Guatemala, Costa Rica, and Panama. His experience in the field lent especial value to his writings and to his teaching, for which many students must feel a debt of gratitude. Professor Thomson's monograph on blackwater fever is one of the standard contributions on this subject, and his work on methods of enumerating malaria parasites in the blood and the study of cultural forms of the parasite are of the greatest importance.

Directness of approach to his subject, sound judgement, and common sense were characteristics of a man whose advice was sought by colleagues, who went to him the more readily on account of his friendliness and kindliness. His personal popularity and his professional reputation made it inevitable that visitors to this country interested in tropical medicine should seek him out, but, whatever the calls upon his time, he never spared himself in assisting others.

Professor Thomson married Hilda Burgess, and had one son and one daughter.

We are indebted to Sir Malcolm Watson of the Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, for the following appreciation:

John Gordon Thomson's death will be mourned as a personal loss by many, both at home and abroad, for Thomson was a great teacher as well as a scientist of distinction. His greatness as a teacher was due to a happy combination of qualities. In a supreme degree he had the gift of clear exposition. He himself saw clearly, for he was an accurate thinker; and it seemed no effort for him to say in simple words what he thought. Whenever he was available I asked him to lecture on the life history of the malaria parasite in man and the mosquito to the malaria course for laymen. It was the opening lecture in the course, and his fascinating account of this complicated story, illustrated on the blackboard, held his audience spellbound. It was an admirable introduction to the subject. Like so many Scotsmen, he spoke slowly and distinctly—of importance in one who lectured to many whose mother tongue was not English. Although most of his life was spent in a laboratory, and although in other ways he did not concern himself much with the business side of life, yet he had a clear grasp of the practical bearings of what he taught, which made his teaching of special value when the student came to study tropical hygiene. But great as these qualities are, he had another, of not less value alike to the student and the School: he had a charity and a benevolence which showed themselves in the personal interest he took in his students, not merely as students but as men and women, some of them in a strange land and far from friends and home. Can we wonder that it was for Professor Thomson that old students asked first when they returned to the School? While he had no sympathy whatever for the slacker, he was deeply concerned when in the examination pass list the names of some whom he thought should have got through were absent. As an examiner his object was to find out what a man knew by questions that helped rather than puzzled the candidate. He was unhappy when some of his colleagues seemed to adopt the other course, and he has told me how he sometimes tilted the balance in the candidate's favour in the subsequent discussion. All this was just part of the great-heartedness of the man, which endeared him alike to his students and his colleagues, and not least to Sir Ronald Ross, who had a specially warm side for both Gordon Thomson and his brother David. His friendship with Ross dated from the time when after a distinguished career at Edinburgh University he joined the staff of the Liverpool School of Tropical Medicine.

About the time he was clinical and pathological research fellow at the Liverpool School of Tropical Medicine he produced, by himself or in collaboration with Ronald Ross, his brother David, H. B. Fantham, and J. A. Sinton, a number of important papers on the enumeration and morphology of trypanosomes, the growth of malaria parasites in culture and in human beings, the cultivation of *Pyroplasma canis in vitro*, and the cultivation of human tumour tissues. A Beit fellowship brought him to London in 1913, where he worked on spirochaetes in the intestine of man and animals, and shortly after he joined the London School of Hygiene and Tropical Medicine, then at the Albert Docks. His appointment as officer of the Malarial Research Laboratory at the War Office again brought him into contact with Ross. The end of the war was not, however, the end of Thomson's travels and researches abroad. It might almost be regarded as the beginning. One of the most important of these was his research on blackwater fever in Southern Rhodesia, made during two visits to that country. In spite of the fact that his health was not quite as good as it might have been, he was off to Nyasaland in 1934 to study immunity in malaria, and spent nearly a year there, keeping a group of African children under constant observation and also interesting himself in trypanosomiasis and other subjects, on which he published reports on his return to London. As he told me not long ago, this last trip, with often unsuitable diet, taxed his strength severely, and at times he was tempted to cut it short—but he stayed the course.

In addition to his many scientific papers he published in 1929, along with Dr. Andrew Robertson, a textbook on protozoology for medical men, which has been of great value. Last year, when, under arrangement with the Ministry of Health, direction of the work of the laboratory at Horton Malaria Therapy Centre was undertaken by the London School of Hygiene and Tropical Medicine, Professor Thomson's special qualifications fitted him to take over its general control and supervision. He was just beginning to get into his stride with this work when, at the beginning of this year, he became far from well, and went into hospital with a gastric ulcer. For some months he improved, and the School saw the familiar figure again for a few weeks. But an internal haemorrhage pulled him down again, and there was evidently something more serious in the background. This compelled his return to hospital. He bore his illness calmly and hopefully, and only the order that he should see fewer people limited the numbers who called to see him.

In an obituary article in the *Times* of August 16 his colleague, Sir Rickard Christophers, wrote: "His name is very familiar also in work in the field of tropical medicine, and his contributions to science are known to research workers all over the world. Perhaps his most outstanding personal characteristics were his readiness to enter into the scientific interests of others and to spare himself not at all in doing whatever was possible to assist their work." Such a man could not fail to leave a fragrant memory to a host of friends.

NORMAN MACLAREN, F.R.C.S.

Consulting Surgeon, Cumberland Infirmary

Mr. Norman Maclaren of Carlisle died on August 12 at the age of 61. He was educated at Carlisle Grammar School, Rugby, and at Trinity College, Cambridge, where he took first-class honours in the Natural Science Tripos in 1897. He qualified M.B., B.Ch. in 1901, and in the same year received the diplomas of M.R.C.S.Eng., L.R.C.P.Lond., and two years later was elected F.R.C.S. From Cambridge Mr. Maclaren went to St. Bartholomew's Hospital, and later to the Metropolitan Hospital, as house-surgeon. He then joined his father, first as an assistant and then as partner, in his practice in Carlisle. Mr. Maclaren was

appointed to the staff of the Cumberland Infirmary as assistant surgeon in 1904, acted as surgeon from 1912 to June, 1936, when he retired as consulting surgeon. On the death of Mr. E. W. Stead he was elected honorary treasurer of the infirmary, and in that capacity continued to render valuable service to the hospital; he was also consulting surgeon to the Border Counties Home for Incurables and the Cumberland and Westmorland Convalescent Home at Silloth. Mr. Maclaren was an active member of the British Medical Association, which he joined in 1903. He was honorary secretary of the Border Counties Branch from 1922 to 1926, president in 1925–6, and assistant honorary secretary in 1926–7, and had previously served as chairman of the English Division in 1919–20. On eight occasions between 1920 and 1935 he acted as representative at the Annual Representative Meeting. He was assistant county commissioner of the St. John Ambulance Brigade, a Serving Brother of the Order of St. John of Jerusalem, and county controller for Cumberland and Westmorland V.A.D.s. He was appointed a justice of the peace for Cumberland in January, 1927, and in December, 1933, was elected chairman of the Cumberland Ward magistrates. At the outbreak of the great war Mr. Maclaren held a commission in the old 1st Volunteer Battalion of the Border Regiment, and proceeded with his battalion to Burma. In 1916 he was transferred to Bombay, where he worked at Colaba Hospital as a major in the R.A.M.C.; he afterwards served in Egypt. On his retirement he was gazetted lieutenant-colonel and received the Territorial Decoration. He continued to be a military member of the Territorial Army Association of Cumberland and Westmorland. Mr. Maclaren contributed articles to the *British Medical Journal* on "Cumberland Infirmary—Past, Present, and Future" (1925), "Addison and Cumberland" (1926), and "Lister and Carlisle (1927). Mr. Maclaren is survived by a widow and two sons, one of whom is a house-surgeon at St. Bartholomew's Hospital.

A colleague and friend writes:

In the passing of Norman Maclaren the profession and community have lost a good friend, for Maclaren's life was essentially one of service. His lifelong interest has been the Cumberland Infirmary. From boyhood, as a son of Roderick Maclaren, a former surgeon, he had been schooled in its traditions, and he completed his full term of service as surgeon only last year. Maclaren was also untiring on committee, and latterly was never happier than when as treasurer of this institution he could present a favourable balance sheet. The Maclarens had always carried on a general practice in addition to their surgical work, so that Norman Maclaren leaves many patients who will find a blank in their lives, for he was often very much more than their professional attendant, guiding and advising in many family crises. Those of us who served with him in Burma and India throughout the war will always remember gratefully his interest, professional and personal, in the welfare of all ranks. In latter years his archaeological interests had brought him much in contact with the recent work on the Great Wall of Hadrian, while his work in heraldry had resulted in the production of the arms of all the former Bishops of Carlisle. Carlisle is the poorer for his passing, but, using his own oft-repeated phrase, we must "carry on."

Mr. J. N. J. HARTLEY writes:

The passing of Norman Maclaren has deprived Carlisle of a leading member of the medical profession, and will occasion sorrow to numerous devoted patients and to a wide circle of friends and colleagues. For more than thirty years he has been a member of the honorary surgical staff of the Cumberland Infirmary. It was only last year, on attaining the age limit, that he ceased active membership on the staff and was appointed honorary consulting surgeon. Though he retained a keen interest in practical surgery, his energies during recent years have been largely devoted to the administrative side of the institution. As honorary treasurer and an enthusiastic member of numerous hospital committees he has rendered invaluable service, and he has taken a large share in introducing schemes for the further extension of the Cumberland Infirmary, and especially for launching the new operating theatre fund. In the future his memory will be linked chiefly with the Cumberland Infirmary.

He had a rich store of memories of his school days at Rugby, of Cambridge, of St. Bartholomew's Hospital, of surgery in the time of his distinguished father, and of his own experiences in Burma and Egypt during the great war. As hobbies he had great interest in and knowledge of heraldry and archaeology. We shall treasure memories of Norman Maclaren as a genial companion, a loyal colleague, one reluctant to believe, and never uttering, anything but good of his fellows, and zealously devoting time and energy to voluntary medical service.

MARTIN H. OLDERSHAW, M.D., F.R.C.S.

Surgeon, Hospital for Women, Soho Square

We announce with regret the death, at the age of 46, of Dr. Martin Herbert Oldershaw of Upper Wimpole Street. Dr. Oldershaw began his education at the Brighton Technical College, and entered University College Hospital after winning the Bucknill scholarship. He graduated M.B., B.S. in 1917, and in the same year was appointed to the resident staff of University College Hospital, occupying in succession the posts of house-physician, house-surgeon, obstetrical registrar, and casualty surgical officer. In the course of these appointments he proceeded to the M.D. with a gold medal in 1919, becoming at the same time a Fellow of the Royal College of Surgeons. His interests were chiefly obstetrical and gynaecological, and he was appointed to the staff of the Soho Square Hospital for Women. Later he became consultant obstetrician and gynaecologist to the London County Council, and consultant gynaecologist to the British Red Cross Clinic for Rheumatism and to St. John's Clinic. He was also consultant obstetrician to the St. Pancras Borough Council, and examiner to the Central Midwives Board and General Nursing Council of England and Wales. Dr. Oldershaw was a Fellow of the Royal Society of Medicine, and he played an active part in the work of the Obstetrical and Gynaecological Section. For four years Dr. Oldershaw was honorary secretary of the Hunterian Society. He published one or two articles in professional journals on the treatment of cancer of the uterus, and on the significance of bleeding as a symptom in gynaecology. A keen Mason, he had held many Masonic appointments, including the Mastership of the Aesculapius Lodge. He is survived by his wife and a young son.

The sudden death of Dr. EDMUND WELCH on August 2 removed one of the best-known personalities in the medical profession in Leeds. Dr. Welch, who was in his sixty-eighth year, was born in Morley. On qualifying in 1895 he settled down in Stanningley, where he remained in active practice till the day of his death. He became a member of the British Medical Association in 1912, and there found an outlet for the dominating interest in his life—service for his fellow practitioners. He did very important work for the profession in the early days of the National Health Insurance Act and during the war, which was recognized by his election as representative in 1925, in which capacity he acted until his death. He was chairman of the Leeds Division in 1929–30 and president of the Yorkshire Branch the same year. His association with the Insurance Acts Committee began in 1927, and he devoted himself whole-heartedly to his duties. He was appointed to so many subcommittees that it was a mystery how he found time for them. It was a certainty that if he ever failed to attend one it was because he was present at some other. Dr. Welch's charming personality endeared him both to his patients and to his fellow practitioners. If he had to offer adverse criticism he did so in such a quiet, gentle manner that it never failed to carry great weight. He died as he would have wished to do—in harness: he had finished his day's work before being seized by a heart attack. Dr. Welch is survived by a widow and two sons, one of whom was in partnership with him.

DR. PATRICK P. J. GANTÉAUME, M.B.E., one of the best-known practitioners and public men in South Africa, died at East London, Cape Province, on July 31. He studied at Edinburgh University and graduated M.B., C.M. in 1899. After a year and a half as house-surgeon and assistant in Sunderland he went off to the Boer War, being attached as surgeon to the Highland Light Infantry. After the war he settled in East London, and there built up a large surgical and general practice. During the great war Dr. Gantéaume was attached for some time as a surgeon to No. 1 General Hospital, South Africa. A gifted speaker and fluent French scholar, he loved public affairs, and was re-elected mayor of the city of East London for several consecutive years. Dr. Gantéaume had been in failing health for the last few years, but in spite of a painful duodenal ulcer he bravely carried on a small portion of his old practice to the end. At the Annual Meeting of the British Medical Association at Aberdeen in 1914 he acted as representative of his Division.

We announce with regret the death of Dr. HERBERT CHRIPPES UPTON of Hove in July of this year. He was the oldest practitioner in Sussex, having reached the age of nearly 93, and was doing his work till within a few days of his death. Dr. Upton received his medical education at St. Bartholomew's Hospital, where he won the Foster prize, and was a scholar in medicine, surgery, and forensic medicine. He took his M.R.C.S. in 1866, taking the L.R.C.P. in the following year. He was appointed resident medical officer of the Brighton and Hove Dispensary and settled down in practice in Hove nearly fifty years ago. He took a great interest in municipal affairs, was elected a member of the Hove Town Council, and later became an alderman, which office he held at his death. His medical knowledge was much valued by his colleagues on the many committees on which he served. He gave his time and services willingly and freely to the work of the council for a period of well over forty years. Dr. Upton took a great interest in the game of bowls, and was often to be seen at the Hove Bowling Club during his periods of recreation. His funeral was attended by a large number of his friends, patients, and colleagues, including the Mayor of Hove and many aldermen, councillors, and officials of the Hove Corporation, an eloquent testimony to the regard, esteem, and affection in which he was held. Dr. Upton took no special part in the work of the various medical societies of the town, but his quiet, unostentatious devotion to the interests of his patients endeared him both to them and to his fellow practitioners. He leaves behind him the memory of a life of useful work, carried on for so many years in the best tradition of our profession.

The death of Dr. EDWARD MERRY of Brighton removes a well-known and much-respected member of our profession from our ranks. Dr. Merry took the M.R.C.S., L.R.C.P. in 1899, after having studied for a short period at the London Hospital. In the following year he proceeded to the M.D. of Western University, Ontario, where he had received the early part of his medical education. He settled in Brighton, and practised there for some twenty years before retiring. He took a special interest in midwifery, and was well known for his experience in that branch of medicine. He will be remembered, too, by thousands of holiday-makers and Brighton people as the doctor who, until he retired from practice five years ago, went down to the beach to preach at the open-air mission. Dr. Merry was a member of the Plymouth Brethren, and his vigorous sermons were a feature of life on the Brighton front. His funeral took place on August 11, and was attended by many colleagues, patients, and friends. He leaves a widow and five children, to whom the sympathy of his colleagues in Brighton is extended.

Medico-Legal

PUERPERAL FEVER IN A COTTAGE HOSPITAL

Damages Awarded to Patient

A young Leicestershire woman was recently awarded heavy damages against the Ashby-de-la-Zouch Cottage Hospital and her general practitioner for injuries due to puerperal fever, which she contracted in the hospital.*

At the Derbyshire assizes, held in July before Mr. Justice Singleton, Mrs. Marjorie Heafield sued Mr. C. E. Crane, chairman of the hospital, and Dr. J. W. Hart of Measham for negligence. She alleged that before her illness she had been a healthy and active woman and a good tennis player. She was married in 1933, and entered the hospital on January 5, 1936, as a paying patient, for her confinement. The child was born in the "old labour ward" in the presence of Dr. Hart and Sister Maud Seymour, who was not wearing an overcoat, mask, or gloves, and had been attending a Mrs. Ingham, who had on the previous day shown symptoms of puerperal sepsis. The hospital was understaffed, and Mrs. Heafield was left some hours in the old labour ward without proper attention. She was then removed to the "general ward," which contained three other women, including Mrs. Ingham, with whom she was eventually notified as a case of puerperal sepsis. On the evening of January 6 her temperature was 101.4° F.; next day it was 102.8°, and in the evening it rose to 104.6°. On January 8 Dr. Hart notified her. Until January 18, however, her husband was told that her case was proceeding normally. He then became alarmed and sought out Dr. Hart, who confessed that he was a little worried. The husband then asked for a specialist. Dr. C. O. Lochrane, a gynaecologist, was sent for and had her removed to a Derby hospital for treatment. She recovered, having received transfusions of blood; she was now totally crippled and not expected to have anything like normal function restored.

Mrs. Ingham said in evidence that she had been confined in the hospital on January 1, that the nurse did not wear

* For the above account we are chiefly indebted to the *Leicester Evening Mail* for July 13–17 and 30.

gloves or mask and that Dr. Hart had told her that she and Mrs. Heafield were suffering from the same disease. Mr. Heafield said in evidence that on January 8 his wife had complained of being hot, and on January 18 she was partly delirious. Her weight had fallen from just over 9 st. to 5 st.

Sir Bernard Spilsbury said that the hospital case-book showed quite clearly that there were notifiable puerperal cases at the hospital. Such cases should be isolated and no other patients should be admitted into the ward until it had been thoroughly cleansed and sterilized. Nurses should have their clothing covered by sterilized gowns and wear masks and gloves. Inquiry should be made for the possibility of infection among other patients, and to take swabs might be a wise precaution. A nurse could carry infection. Mrs. Heafield should not have been admitted to the hospital. He would not allow a woman to come into a ward where there was another woman with a temperature of 104° F. Nothing but sepsis could account for an intermittent temperature ranging from 102° F. in a puerperal case. A temperature of 104° F. was gravely suspicious of puerperal fever. The charts prepared for the action contained a clear indication of puerperal fever and showed that no healthy patient should have gone into the ward.

Dr. J. L. Berry, lecturer at Birmingham University, who had prepared the charts produced by Sir Bernard Spilsbury, said they showed that the patients whose temperatures they represented had notifiable pyrexia and that the general character of Mrs. Heafield's record indicated a streptococcal infection. Mrs. Heafield was at the time of the action still strapped and bandaged to a steel frame; her legs were moved outwards and her right wrist was rigid with only very slight movement. The right shoulder and head could be moved. She would probably be a permanent cripple and would hardly be able to walk. Her condition was due to puerperal sepsis.

Dr. G. B. Gill, general physician, Leicester, said he had formed the conclusion, by examining the case-books of the hospital for the three weeks before Mrs. Heafield's admission, that it was a "seething hotbed of mixed infection." Cross-examined, he admitted that a large number of patients had no temperatures, but observed that resistance varied greatly. He thought Dr. Hart should have had Mrs. Heafield isolated with a special nurse when her temperature rose.

The Case for the Hospital

Counsel for the hospital, after opening his case, called Sister Seymour, who said that she was second in command. Temperatures were taken at 6 a.m. and 6 p.m., and the charts were always available for the doctors. There were about twelve beds in the maternity unit. Dr. Hart had always seen the charts. Mrs. Ingham had had a temperature the evening before Mrs. Heafield was admitted. As a qualified midwife she realized that a temperature might be significant. She wore only a mackintosh apron and never wore a mask, gloves, or overall without instructions. There was a supply of gloves and masks for use if required and a special supply of mackintosh aprons. Dr. Hart had worn one of these. Nurses always went and scrubbed their hands immediately after attending a patient's dressing. After Mrs. Heafield's baby was born the sister thought she saw her crying, but Mrs. Heafield said she had a cold. Cross-examined, she agreed that nurses had in recent years been taught much about the danger of septic infection, and that she knew the danger-flag was temperature and had been taught that a temperature of 100.4° persisting for twenty-four hours was probably due to sepsis. On the matron's instructions she had written in her report after the action had begun, "Appears to have a cold."

Dr. S. C. M. Davison, a general practitioner of Ashby, said that he had attended the hospital for ten years, and, speaking generally, had never had any cause for complaint against the hospital or staff. Changes of temperature were immediately notified.

Dr. H. H. Silley stated in cross-examination that the medical staff of the hospital had held a meeting on January 22, at which Dr. Hart had been present, to discuss the best method of preventing any further cases of puerperal sepsis. It had been decided that there was one undoubted case, that of Mrs. Heafield. He maintained that the routine of the hospital was not known to be faulty.

Mrs. Anne Warren, superintendent health visitor for Leicestershire, said that as a result of Dr. Hart's notification she had visited the hospital on January 14. She had seen Mrs. Ingham's temperature chart and formed the opinion that she was suffering not from puerperal fever but from mastitis. Mrs. Heafield's chart showed that her temperature was 100.4° F. or 100.6° F. on the evening of her confinement, and therefore suggested that whatever germ she had had she had brought in with her. There was not sufficient swing for a typical puerperal fever chart. She had remarked to Mrs. Heafield, "You have a cold," and Mrs. Heafield had answered, "Yes, I had it a day or two before I came in." Her definite opinion was that Mrs. Heafield was suffering from influenza, which had been very rife at that time. She had no criticism of the maternity administration of the hospital.

Miss Alice Arkinstall, the matron, said there was no resident doctor and the medical staff were purely honorary. If a patient developed a temperature it was the custom to ring up her doctor. She did not suspect Mrs. Heafield of puerperal fever until the superintendent health visitor had come. Dr. Hart had never told her to inform the other doctors of the condition of Mrs. Heafield. If she had been suspicious she would have informed them. During her six years in the hospital 650 babies had been born without the loss of a mother. In answer to the judge, she said that Dr. Hart had never suggested that Mrs. Heafield ought not to have been placed in the same ward as Mrs. Ingham. He had not been kept from seeing the charts of other patients. Cross-examined, she said that the entry "Appears to have a cold" was put into the case-book when the solicitor had first come to see her "just to remind her." This was not "a terrible thing to do," and she had not realized that it might be a part of her defence.

Dr. W. E. Barnie-Adshead of Birmingham said that in his opinion Mrs. Ingham had not suffered from puerperal fever and Mrs. Heafield had been infected before ever Dr. Hart delivered her; and that she had not suffered from the same type of disease as Mrs. Ingham, who therefore could not have infected her. Dr. Hart ought to have isolated Mrs. Heafield when her temperature rose and proceeded with investigations. Having regard to the charts and case-book, it was not safe to put her in the same ward as Mrs. Ingham, although Mrs. Ingham might have been suffering only from a simple complaint.

Counsel for Dr. Hart called and examined Dr. J. P. Hedley of St. Thomas's Hospital, who said that puerperal fever covered three classes of disease, and that, from the case-book and charts, Mrs. Ingham's temperature was caused by a different germ from that of Mrs. Heafield, who was probably not infected in hospital by puerperal fever. If she had been she would almost certainly have died. Puerperal fever was often caused without outside infection. Dr. Hart had done everything possible in the treatment of Mrs. Heafield. He agreed, in answer to the judge, that if infection were about gloves and a mask should be worn by everyone attending the patient.

Dr. Francis Allen of the Cripples' Hospital, Birmingham, stated that Mrs. Heafield had had two operations since December, and would not be able to walk or sit down naturally again. Her hips were completely stiff.

Dr. Hart's Evidence

Dr. Hart testified, in his own defence, that he had taken the usual precautions in attending Mrs. Ingham. He had not worn gloves, because he did not do so in a normal case. After he had left her he had not known where in the hospital she was placed. At that time he had no knowledge of any patients with temperatures, or of suspected puerperal infection. She had been normal on January 2 and 3; he had not visited her on the evening of January 4, but on the morning of January 5 had found that she had had a temperature the night before. He had been very annoyed, and had asked the matron why he had not been informed. He had suspected

that Mrs. Ingham had some puerperal infection. He had treated her on January 8 and notified her case to the medical officer of health; her condition had improved, and on January 19 she had been discharged. He was still her medical adviser. Mrs. Heafield's confinement had been normal. He had visited her on January 6 and again on January 7, when he had found that her temperature had risen the night before. This had not been reported to him, and he had become very alarmed. He had begun to suspect puerperal infection, and decided to notify Mrs. Heafield's case as well. He had told the matron this and discussed with her the steps to be taken to stop the spread of infection, saying that other doctors must be told. On January 8 or 9 the hospital temperature charts had shown that two other patients were running temperatures. He had told the matron that this looked "something very bad." He had never thought that Mrs. Heafield contracted her infection from Mrs. Ingham. He admitted in cross-examination that he knew very little about puerperal fever and supposed that he had wasted about a couple of days. These were the first two cases that he had ever had go wrong. He could only suggest one instance of negligence of a nurse during the confinement of these women: she had walked from one to another without washing her hands. After he had notified the cases and spoken to the matron the whole atmosphere of the hospital had changed towards him: he had not received the same courtesy as before. For ten years he had been attending four or five patients a year there, but since the action had begun he had not had any. Three of his patients had asked to be confined in the Ashby hospital under his attendance, but the matron had said that the hospital was full. This might or might not have been correct. He had not interfered with the regular routine of the hospital, and had no idea which ward Mrs. Heafield would go to.

The Judgement

The learned judge reserved his judgement and delivered it in London on July 30. He said that he was satisfied that Mrs. Heafield was not suffering from a cold when she entered the hospital, because if she had been Dr. Hart would have noticed it. It was most unfortunate that the addition, "Appears to have a cold," should have been made to what was supposed to be a record of the case made at the time, and he could not accept the statement of the matron that "it was just to remind me." He also rejected the evidence of the superintendent health visitor, Mrs. Warren, that Mrs. Heafield said she had a cold before she went into hospital. He believed that Mrs. Heafield was perfectly well when she entered the hospital, and the first sign of anything being amiss had been on the evening of January 6, when her temperature had been 101.4° F. Although Dr. Hart had notified the case on January 8, and on that day written a letter to the secretary of the hospital, he had not said a word to Mr. Heafield until on January 18 he had found her flushed and delirious and had suggested a second opinion. His lordship was satisfied that Dr. Hart had been right in diagnosing Mrs. Heafield's case, and also Mrs. Ingham's case, as being due to puerperal fever. Mrs. Heafield had caught the infection from Mrs. Ingham through being placed in the same ward with her without special precaution. There had been at the hospital complete disregard of the statutory regulations, which required cases of puerperal pyrexia to be notified. To say the least, it was regrettable that so little attention seemed to have been paid to the regulations, and it was in Dr. Hart's favour that he had reported his two cases on January 8. The hospital staff had failed in their duty through placing Mrs. Heafield in a ward where there was a gravely suspicious case, and Dr. Hart had failed in his duty by not isolating Mrs. Ingham. Women were encouraged to go to hospitals and nursing homes for their confinements because of the better facilities for cleanliness and safety, but Mrs. Heafield would have been far safer at home. He awarded her £3,500 general damages and £149 special damages against Dr. Hart and Mr. Crane jointly, but against Mr. Crane in his representative capacity only.

Dr. Hart's defence was undertaken by the London and Counties Medical Protection Society.

Universities and Colleges

UNIVERSITY OF LONDON

Recognition of Teachers

The following have been recognized as teachers of the University in the subjects indicated in parentheses:

London Hospital Medical College.—Mr. D. W. C. Northfield (Surgery).

Guy's Hospital Medical School.—Mr. R. C. Brock (Surgery); Dr. R. W. B. Ellis (Children's Diseases); Dr. C. P. Symonds (Medicine).

St. Mary's Hospital Medical School.—Mr. A. E. Porritt (Surgery).

King's College Hospital Medical School.—Mr. A. W. Kendall (Surgery).

University Readership in Biochemistry

The Senate has resolved to institute a University Readership in Biochemistry tenable at the Lister Institute of Preventive Medicine in accordance with the Regulations on University Titles (*Calendar*, 1936-7, pp. 259-70).

Dixon Fund

Dr. C. S. Hallpike has been granted £15 from the Dixon Fund towards the cost of an automatic knife-grinding machine in connexion with a histological examination of the temporal bone, and Dr. Giulio Stella £30 from the same Fund for the purchase of apparatus and materials to aid an investigation on the respiratory central mechanism, the researches to be carried out at Middlesex Hospital and in the physiology department of University College respectively.

Thomas Smythe Hughes Medical Research Fund and Beaverbrook Fund

The following grants, amounting in all to £200, have been made out of the Thomas Smythe Hughes Medical Research Fund and the Beaverbrook Fund for 1937-8, for research to be carried out at the college or hospital designated:

To Dr. Harold Muir Evans, £50 to be spent on the technical preparation of microscopic specimens to aid a comparative study of the brain of Teleostean fishes, with special reference to their habits and the study of seasonal changes in the pituitary gland of fish (Anatomical Department, University College, and in own laboratory).

To Mr. Roderic Alfred Gregory, M.Sc., £30 for the purchase of materials in connexion with investigations of the metabolism of the isolated mammalian heart, with special reference to carbohydrates, in normal and hyperthyroid animals (Department of Physiology, University College).

To Dr. Richard Wheeler Haines, £30 for the purchase of materials in connexion with a revision of the forearm muscles in a number of primitive animals (Department of Anatomy, St. Thomas's Hospital).

To Mr. John Marshall Ledingham, B.Sc., not exceeding £30 for a dissecting microscope and for the purchase of materials in connexion with an investigation into the mode of initiation and propagation of an impulse set up in a nerve fibre by electrical stimulation (Department of Biophysics, University College).

To Professor Bryan Austin McSwiney, £15 for materials for research on (1) visceral afferent pathways, and (2) reflex mechanism controlling pancreatic secretion (Sherrington School of Physiology, St. Thomas's Hospital).

To Dr. Walter Roworth Spurrell, £20 for the purchase of a microtome for serial sections in connexion with a research on the output of prolan and oestrin in the normal and pathological cycles of menstruation and pregnancy (Physiology Department, Guy's Hospital Medical School).

To Professor Samson Wright, £25 towards the cost of a Keith Lucas pendulum and accessories for the continuation of research on the action of acetylcholine and related substances and of anticholinesterases on the central nervous system (Middlesex Hospital Medical School).

The Senate has resolved that students who have passed the B.Sc. (Household and Social Science) Examination be exempted from the Second Examination for Medical Degrees, Part 1, and that the Regulations for Internal Students (*Red*

Book, 1936-7, p. 263) be amended accordingly, and that students who have passed the M.B., B.S. Examination be exempted from examination in pathology and bacteriology at the B.D.S. Examination, and that the Regulations for Internal Students (*Red Book*, 1936-7, p. 301) be amended accordingly.

The Ph.D. Degree in Physiology has been awarded to Robert Laing Noble, M.D. (Middlesex Hospital Medical School), and the D.Sc. Degree in Physiology to Mrs. Marion Grace Eggleton, M.R.C.S., L.R.C.P. (University College).

Dr. F. D. Turner has been appointed governor of Colchester Grammar School.

Professor T. B. Johnston, who has held the University Chair of Anatomy tenable at Guy's Hospital Medical School since September, 1919, having been appointed superintendent of Guy's Hospital on the resignation of Mr. H. L. Eason, the Chair has been replaced by a part-time Chair tenable at the School, and Professor Johnston has been appointed thereto as from October 1. Professor Johnston has relinquished the office of Dean.

The Services

DEATHS IN THE SERVICES

Lieut.-Colonel JOSEPH FRANCIS WHELAN, D.S.O., O.B.E., R.A.M.C. (ret.), died at Hove early last month, aged 64. He was born on March 1, 1873, was educated at the Catholic University, Dublin, and graduated as M.B., B.Ch., and B.A.O. in the Royal University of Ireland in 1896. After filling the post of house-physician of the Mater Misericordiae Hospital in Dublin, he went out to South Africa to serve as a civil surgeon in the South African War, in March, 1900, and took a permanent commission as lieutenant in the R.A.M.C. on November 14, 1900. He attained the rank of lieutenant-colonel on June 2, 1918, and retired on March 1, 1928. For some time after his retirement he was employed on the retired list at Warwick. Before he took up the study of medicine he served as an official in the General Post Office, Dublin; and in his youth was a well-known Association football player, playing full back for Leinster in the old Interprovincial tournaments. He served in the South African War from 1900 to 1902, taking part in operations in Cape Colony, the Orange River Colony, and the Transvaal, and received the Queen's medal with three clasps and the King's medal with two clasps. He also served throughout the war of 1914-18, when he was mentioned in dispatches in the *London Gazette* of March 12, 1918, and received the D.S.O. and the O.B.E. He was a member of the British Medical Association from 1903 to 1924.

Lieut.-Colonel JAMES DUNNE DAY, R.A.M.C. (ret.), died at Isleworth on June 18, aged 82. He was born on December 31, 1854, and was educated at Trinity College, Dublin, where he graduated M.B., B.Ch., B.A.O., in 1878, subsequently taking the F.R.F.P.S. at Glasgow in 1888. Entering the Army as surgeon on March 6, 1880, he became lieutenant-colonel after twenty years' service, and retired on June 19, 1901. He served in the South African War in 1899-1901, when he took part in operations in Cape Colony and in the Orange River Colony, including the actions at Colesberg and Vet River, and he received the Queen's medal with three clasps.

Colonel WILSON RANSON, D.S.O. R.A.M.C. (T.F.) (ret.), died at Hull on July 31, aged 67. He was the son of Mr. Joshua Ranson, and was educated at Bradfield and afterwards at Edinburgh and at St. Thomas's Hospital. He took the Scottish triple qualification in 1894, and the F.R.C.S.Ed. in 1898. After serving as assistant surgeon at the Down County Infirmary at Downpatrick he joined the R.A.M.C. (T.F.), and in 1907 was placed in medical charge of the 15th Regimental District at Beverley. At the outbreak of war in 1914 he went to France, serving successively in command of the 3rd Northumbrian Field Ambulance in the 50th Division, the 47th Casualty Clearing Station in the Fifth Army, and the 30th General Hospital as A.D.M.S. of No. 1 Army Area, and finally as D.D.M.S. of the 4th Corps in the Army of the Rhine. He was twice mentioned in dispatches, in the *London Gazette* of January 1, 1916, and of January 1, 1917. He was twice wounded, and was specially promoted to the rank of colonel in December, 1917, and received the D.S.O. After the war he served as deputy commissioner of medical services at the Ministry of Pensions and as medical superintendent of the Ministry's hospital at Orpington. His chief recreation was hunting; in 1901-2 he was master of the Ashburden Harriers. He married twice and had one son.

Medical News

A notice appears in our advertisement columns this week inviting applications for the Chair of Anatomy in the University of Melbourne at a salary of £1,200 per annum. In another notice applications are invited by the London County Council for a coroner to fill the vacancy created by the death of Dr. Edwin Smith. The salary is £1,700 per annum.

The annual dinner of past and present students of St. Mary's Hospital Medical School will be held at Claridge's Hotel on Saturday, October 2, at 7.30 p.m.

Lord Hartington, in his presidential address at the annual meeting of the Devonshire Royal Hospital, Buxton, referred to a £30,000 scheme on which the committee of management had embarked, and said that these extensions were urgently necessary. The Marchioness of Aberdeen said there was still inadequate public recognition of the fact that rheumatic diseases were curable, although the International League against Rheumatism had collected records of wonderful work in thirty countries.

The sixteenth American Congress of Physical Therapy will be held in Cincinnati, Ohio, from September 20 to 24 at the Netherland Plaza Hotel, under the presidency of Dr. William Bierman of New York. Further information can be obtained from the editorial and executive officers of the Congress, 30, North Michigan Avenue, Chicago.

The thirteenth Medical Congress of the Alps will be held in Salzburg on September 24 and 25, when the chief subject for discussion will be the diagnosis, indications, and treatment of emergencies. Further information can be obtained from Dr. Rudolf v. Rauchenbichler, Schwarzstrasse 12, Salzburg.

The Annual Congress of German Neurologists and Psychiatrists will be held at Munich from September 20 to 22, when the following subjects will be discussed: cerebral tumour, epilepsy, and experiment in psychotherapy. Further information can be obtained from Professor Nitsche, Bezirk Dresden, Pirna.

The Jugoslav Medical Society will hold its annual congress at Novi-Sand from October 3 to 5, when the subjects for discussion will be acute infectious diseases, alcoholism, tuberculosis, and professional problems. Further information can be obtained from the secretary, Seleni Venaz 1 and 2, Belgrade.

An International Congress of Scientific Journalism will be held in Paris from October 7 to 9, under the auspices of the Ministry of Commerce and Industry, the fee being 25 francs. Among the questions set down for consideration are the communication of information to the lay press; the preparation and publication internationally of scientific reviews; and the status of scientific journalists. It is hoped at this congress to formulate proposals to place this branch of journalism on a more satisfactory basis, and to arrange for the popularization of the more important modern discoveries which have general practical implications. All inquiries should be addressed to M. Jules Toutain, the general secretary of this congress, 25, Rue du Four, Paris, VI.

The International Congress of Anaesthetics will be held at the Congress Hotel, Chicago, from October 25 to 28, during the Clinical Congress of Surgery. Further information can be obtained from the general secretary, Dr. F. H. McMechan, 318, Hotel Westlake, Rocky River, Ohio.

The seventh Italian Congress of Forensic Medicine and Insurance will be held at Naples from October 15 to 18, under the presidency of Professor Giuseppe Falco. The subscription is 30 lire. Further information can be obtained from the secretary, Via Luciano Armanni, 3, Santa Patricia, Naples.

A postgraduate course in the technical surgery concerned in the treatment of affections of bones, joints, and muscles will be held by Professors Ombredanne and P. Mathieu, in conjunction with other experts, and under the auspices of the University of Paris, from October 11 to 28. Special attention will be paid to modern operative technique, and there will be practical classes. Further information may be had from Professor Mathieu at the Clinic of Orthopaedic and Adult Surgery, Hôpital Cochin, Paris; the fee is 250 francs.

The Duke of Kent will visit Blackpool on October 21 to open the new hospital which has been built at a cost of £225,000.

The National Association for the Prevention of Tuberculosis have published a ninth edition of their *Handbook of Tuberculosis Schemes*. This forms a complete directory of the tuberculosis work in each administrative area of the United Kingdom, the Irish Free State, and the Channel Isles. The handbook may be obtained from the Secretary-General, N.A.P.T., Tavistock House North, London, W.C.1, and the price is 5s.

The return for 1936 of Vital Statistics of Non-native Officials in West Africa has now been published by the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, price 6d.

An interesting Paris thesis by Dr. Albert Monnier (*Thèse de Paris*, 1937, No. 254) is devoted to the life and work of Jean Charcot, who followed his father as a neurologist for several years before he became an explorer.

Dr. Robert N. Nye has succeeded Dr. Walter P. Bowers as editor of the *New England Journal of Medicine* and Dr. Howard Fox has succeeded Dr. William Allen Pusey as editor of the *Archives of Dermatology and Syphilology*.

The King has appointed Dr. Arthur Hutton McShine, O.B.E., to be a member of the Executive Council of the Colony of Trinidad and Tobago.

The King has approved the appointment of Dr. Noel James Linnington Margetson to be an Official Member of the Legislative Council of the Presidency of Montserrat, Leeward Islands.

Dr. Max Neuburger, professor of medical history at Vienna, has been elected an honorary member of the American Association of the History of Medicine.

Dr. Georges Duhamel, member of the French Academy and editor of the *Mercure de France*, has been elected member of the French Academy of Medicine in place of the late Dr. Legendre.

The Bank of Rome has contributed a sum of 50,000 lire for the foundation of a Prince of Naples Institute for encephalitis to commemorate the birth of the son of the heir to the throne of Italy.

The New York banker Mr. W. Childs has left the University of Yale a sum of about 10 million dollars for cancer research.

A committee has been formed in Paris to erect a statue of Laennec in front of the Hôpital de la Charité, where he was physician.

A memorial to William and John Hunter was unveiled in East Kilbride Public Park on July 28 by Sir Hector J. W. Hetherington, principal of Glasgow University. It bears a relief symbolic carving with the inscription: "To the memory of William Hunter, M.D., F.R.S., 1718–1783, and John Hunter, F.R.S., 1728–1793. They were born at Long Calderwood, and died in London after attaining the highest eminence in the sciences of medicine and biology. Their names will be held in reverent remembrance by a grateful posterity to all generations."

Dr. Laubry has been nominated the first occupant of the new chair of cardiology in the Paris Faculty of Medicine.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh;* telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin;* telephone 62550 Dublin).

QUERIES AND ANSWERS

B. coli Orchitis and Cystitis

"ANTIPODEAN" writes: A male, aged 30, had a severe left-sided orchitis, which developed into an abscess. The laboratory report showed principally *B. coli communis*. Five years later the same organism seemed responsible for a severe attack of cystitis. The patient is healthy in all other respects; the Wassermann reaction is negative; there is no history or evidence of tuberculosis; no constipation, rather the reverse; and the family diathesis is gouty. His habits are temperate and active. *X*-ray examination showed no calculi in the urinary tract or in the kidneys. The attack cleared up with mandelic acid, but we are puzzled as to the mode of entrance of the *B. coli*, first, to the testicle, and subsequently to the bladder. Can anyone explain this?

Thyroid Treatment of Lymphadenoid Goitre

Dr. P. G. DOOLEY (Co. Waterford) writes: Is it safe to administer thyroid extract, and if so, in what dosage, in a case of lymphadenoid goitre (Reidel's disease) in a female aged 70? Is the size of the gland likely to be influenced in respect of symptoms of dysphagia and dyspnoea? A short course of iodine appeared to aggravate the condition.

Sun Sensitivity

Dr. W. J. BURNS SELKIRK, in reply to "F. L." (*Journal*, July 3, p. 48), writes: In the *Archives of Pediatrics*, Sec. 1,935, pp. 833 to 840, he will find a very interesting communication by Dr. Eder on the administration of iron for such a case, even though the haemoglobin level is high. I have tried it in my daughter's case apparently with good results. Dr. Eder found similar benefit in children who blistered under ultra-violet rays, and he claims that if it is started early it prevents freckling.

Otitis Externa from Swimming Pools

Dr. R. S. GILCHRIST (Doncaster) writes: I wonder if any of your readers have had experience of the treatment and prevention of otitis externa resulting from swimming in pools of chlorinated water. I used to be a "daily dipper" until recently I developed this annoying condition, which begins as a sensation of fluid in the ear passage, with intolerable itching. Within a day or two there is a profuse discharge of serum, and pieces of desquamated epithelium—on one occasion a complete cast of the external ear passage—come away with this discharge. The condition may last for weeks, and even after it has apparently gone about a dozen dips in the pool bring it back again. I have tried rubber ear-plugs, vaseline, and cotton-wool, and a special submarine bathing cap, but none of these keep water out of the ear. For the ear itself ung. hydrarg. nitrat. dil., 5i in

3i liq. paraff., seems to be about the only treatment, and the results from this are extremely slow. Using a stethoscope while the condition is present is both difficult and unpleasant. Avoidance of swimming altogether cuts out one of life's few pleasures. I should be grateful for any advice on treatment and prevention that anyone can offer.

Parathyroid Extract and Enlarged Prostate

Mr. A. P. BERTWISTLE (London, W.1) writes: Can any reader tell me what is the action of parthyroid extract in the treatment of enlarged prostate? I have a patient, aged 78, in whose case cystotomy alone was possible, owing to a high blood urea. The man was going from bad to worse. At times the cystotomy wound closed, and he was in pain; he was becoming very sore, and his morale was rapidly sinking. Under the exhibition of parathyroid extract, grain 1/2, the patient improved at once, the cystotomy closed, and he has been at work for the last four months. I am grateful to Dr. Wood of Guernsey for recommending this line of treatment, which, he says, he used to adopt as a routine with excellent results.

Income Tax

Residence in United Kingdom

"JERSEY RESIDENT" has a total income of £2,500, £857 of which is from a pension. He inquires what income tax will be payable if he becomes a resident in this country.

*** The computation is as follows:

		£	s.	d.
Total income		2,500	0	0
Deduct: Personal Allowance	£180			
Child Relief, £60 × 2 ..	£120			
Earned Income Relief, one-fifth of £857	£171	471	0	0
		2,029	0	0
Tax chargeable on £135 at 1s. 8d.		11	7	8
" " " £1,894 at 5s.		473	10	0
£2,029		484	17	8

This amount has to be compared with the present payment of £253 10s. United Kingdom tax and £40 Jersey tax. In addition surtax would be payable on £500—that is, £27 10s. There would be some relief in respect of Dominion income tax, but the above figures would not be substantially affected.

LETTERS, NOTES, ETC.

Blood Changes in Rheumatism

Dr. A. A. COCKAYNE (Christchurch, Hants) writes: In 1928 Tertius Clarke (*Proc. Roy. Soc. Med.*, **21**, 1004) suggested that rheumatic fever might be due to a protozoon attacking the red blood corpuscles. Examination of fresh unstained blood on a number of occasions during attacks of muscular rheumatism in myself and seven other people has yielded an appearance of some of the red corpuscles which might be due to a protozoon. On examination of a drop of fresh blood a few hours before and during an attack of pain some of the red corpuscles lose their disk shape, becoming globular and exhibiting projections which make them look not unlike the seed-case of the horse-chestnut. When fixed and stained with methylene-blue the projections disappear and there is simply a deeply stained sphere. In the fresh specimen one occasionally sees larger spherical cells containing a number of greenish star-shaped bodies. On one occasion there was a cell undergoing division into segments like an orange, each segment having a shiny black nucleus, rectangular in shape; on another occasion one of the horse-chestnut-like cells seemed to exhibit active amoeboid movement. Quinine seems to clear these cells from the blood in a few hours, together with most of the pain of the rheumatic attack, and to have a definite value in prolonging the intervals between attacks. Neither atebrin nor plasmoquine has been tried, though in theory they also might be efficient against a protozoon.

Termitary Turrets

Dr. WINIFRED COPPARD writes: In the *Journal* of July 17 (p. 118) you reviewed my translation from the Afrikaans of Eugène N. Marais's book *The Soul of the White Ant*. In developing his thrilling theory of the unity of the termitary and its similarity to the human organism, Marais mentions the development of abnormal growths in the "skin" of the termitary, which take the form of useless turrets. These turrets are a hindrance to the health of the organism as a whole, but are continually rebuilt as fast as they are destroyed by wind or weather. They are, in fact, analogous to malignant growths in the human body. Is it not possible that a study of the termitary, which, as Marais points out, is not a heap of dead earth, but a separate animal at a certain stage of development, may provide a clue to the functioning of the healthy human body, and perhaps even a solution to the problem of abnormal growths?

Moukden Medical College

In 1882 Dr. Dugald Christie, the pioneer medical missionary of Manchuria, landed at Newchang and made his way to Moukden. He was unable at first to found a medical centre there owing to intense local hostility, but in 1887 a hospital was opened, and five years later he started to train his assistants in scientific medicine. In 1907 a new and improved hospital was opened, and in 1909 a scheme was launched in Scotland to establish a Christian medical college there. After many vicissitudes the present establishment was brought into being in March, 1912, and the completion of twenty-five years of effective training since then has now been signalized by the publication of an illustrated pamphlet which combines an account of the work in Moukden with an appeal for funds as a memorial to the devoted founder, who died last December. Prominent events in the history of Moukden College include the graduation in 1917 of the first group of medical students after their five years' course of training; the initiation in 1919 of a medical journal in Chinese; the admission of the first women students in 1924; the addition in 1931 of a complete new story to the College teaching block to accommodate classrooms, laboratories, museums, and library; the recognition of the College in 1931 also as the medical faculty of the local university, and in 1934 its recognition by the University of Edinburgh for the admission of its students to post-graduate courses and examinations for Scottish diplomas; and in 1935 the receipt by this institution of the first of a series of grants from the Boxer Indemnity Committee. At present the College is recognized by the Government of Manchoukuo and the University of Edinburgh for certain postgraduate diplomas. The language of instruction is Chinese, but Japanese and English are also taught. About twenty new students are admitted each year to the seven-year course, which is modelled on Scottish University standards. The Church of Scotland Mission Hospital, which is adjacent, has 300 beds, with departments of surgery, internal medicine, tuberculosis, paediatrics, ophthalmology, dermatology and venereal diseases, oto-rhino-laryngology, gynaecology and ante-natal work, and radiology; 5,000 in-patients are treated each year, and there are 120,000 out-patients. Despite the disturbed conditions in the country since its inauguration the College has forged its way ahead. It is proposed to establish a Christie Memorial Chair. Further information may be had from Dr. H. S. D. Garven, Greyfriars, Barnshot Road, Colinton, Edinburgh.

A Warning

Dr. ALICE GILBY (London, S.W.1) writes: A man recently called on me answering to the following description. He was tall but rather bent, and had strikingly pale blue eyes, deformed hands (apparently due to rheumatoid arthritis), and a queer (?) Oxford accent. He is 60 to 70 years old, and shabbily dressed. He claims to be a Dr. Stewart, and says he used to practise in Ebury Street, S.W.1, and was struck off the Register recently for carelessness in dispensing medicine, which led to the death of a patient. He asked for work as a dispenser or assistant. He says he is trying to get back on the Register, and showed a letter purporting to come from his solicitor referring to this and informing him that references would be required before he could appeal for reinstatement. The letter is dated June 9, 1937. When he found I did not fall for the dispenser idea he asked me point blank for money. He claims also to have worked recently for a dental surgeon.

*** We are informed by the dental surgeon that a man calling himself Dr. Stewart on one occasion and Dr. Robinson on another was given money by him, but that he has not employed him.

An interesting pamphlet on the indications for and the therapeutic uses of infra-red rays has just been published by Messrs. Hanovia Ltd., the makers of sollux lamps. The physics and physiology of infra-red radiation are dealt with and the many uses to which the sollux lamps can be put are considered. The booklet may be obtained on application to the makers at their showrooms, 3, Victoria Street, S.W.1.